THE IRON AGE

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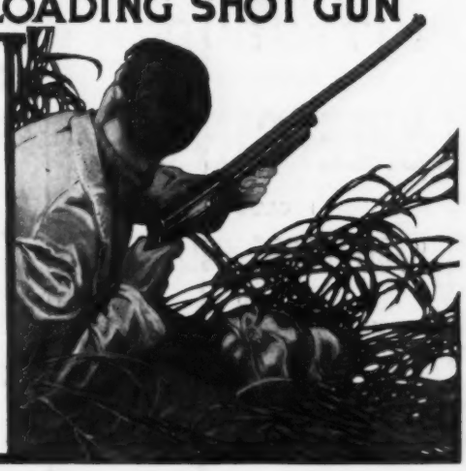

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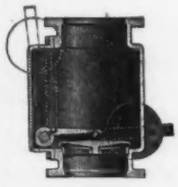

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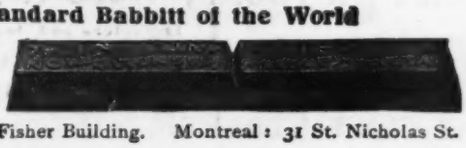

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THE IRON AGE

New York, Thursday, July 9, 1908.

The Ryerson Iron and Steel Warehouses.

Surpassing in magnitude by a considerable margin any similar group of structures devoted to the merchandizing of iron and steel and kindred specialties, the new warehouse and general office buildings just completed by Joseph T. Ryerson & Son, Chicago, stand as a leading exponent of the remarkable development which has given to that city pre-eminent rank as a distributing center. While the natural advantage of location, geographically considered, coupled with unexcelled transportation facilities, are the basic factors underlying the successful evolution of this business, the attainment of its present proportions is directly due to an early recognition of the requirements of the trade and the progressive steps that have been taken to supply them promptly. The construction and equipment of the extensive warehouses here described, affording as they do a floor space—exclusive of main and auxiliary office floors—comprising 675,000 sq. ft., may therefore be regarded as the latest concrete expression of a gradually unfolding plan.

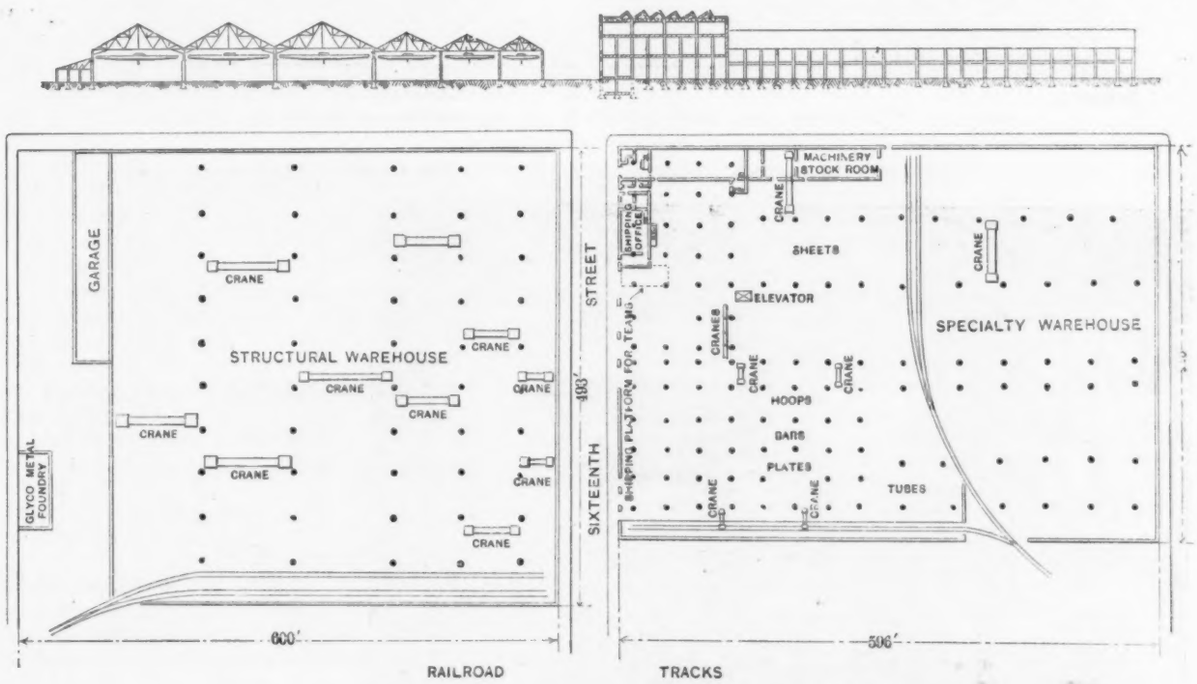


Fig. 1.—General Plan of the Warehouses of Joseph T. Ryerson & Son, Chicago.

The History of the House.

Preliminary to a description of the plant, a brief glance at the origin and history of the organization will perhaps be of interest because of the contrast it affords betwen past and present conditions in this phase of the iron and steel industry. Founded in 1842 by Joseph T. Ryerson, the business had a modest beginning in a store on South Water street, where a stock of iron was kept with a view to supplying the current requirements of iron working shops. No attempt was made to carry a complete assortment of sizes in any of these materials, the entire stock never exceeding a few hundred tons. Yet, owing to the uncertainty attending the prompt execution and shipment of mill orders, even the imperfect facilities it afforded found appreciation among consumers and foreshadowed the possibilities of future development.

After a number of years of slow but steady progress the business was moved from its original location to quarters in the block bounded by Lake street, Clinton street and Milwaukee avenue, where it gradually expanded until several large warehouses in this block were occupied. In the meantime the constantly widening range of consumers' requirements brought about by growing needs of the industrial world, made necessary the addition of new lines and improved methods and provisions for handling them. Up until 1888, when the business was incorporated, its scope of activities was pretty closely limited to the warehousing and handling of materials and specialties for boiler and tank shops, but a few years later steel bars were added, and soon thereafter structural shapes were included in the stocks carried.

This latter step involved the need of a large increase in storage room, which was met by the erection of a warehouse at Sixteenth and Rockwell streets, on part of the site now occupied by the new plant, of which it is indeed the nucleus. The advantages of the new location soon made it apparent that the consolidation of the entire business at this point would be highly conducive to its best interests; and when the property included in the old downtown location was two years ago chosen as part of the territory to be occupied by the new depot and terminal system of the Chicago & Northwestern Railway Company, arrangements were made and plans drawn which culminated in the construction and equipment of what was designed, and is now claimed, to be not only the largest but the most modern and complete system of such warehouses yet built for the handling of iron and steel mill products and allied specialties.

Advantages and Special Features of the Location.

Embracing two entire blocks between Fifteenth place and Eighteenth street on the north and south, and Campbell avenue and Rockwell street on the east and west respectively, the selection of the present site was influenced largely by its proximity to the lines of the Pittsburgh, Cincinnati, Chicago & St. Louis, the Chicago, Burlington & Quincy and the Chicago Terminal Transfer railroads, whose right of way extends along the eastern side, and with all of which direct connection is had by six switch tracks entering the warehouses.

As will be noted by reference to the plan drawing, Fig. 1, these tracks are arranged to serve each of the two units comprising the plant. Some idea of their extent may be had from the fact that they will accommodate 49 cars, in position for loading or unloading, under roof at one time. The loading platforms in each building, one of which is shown in Fig. 2, are directly served by traveling cranes which transport material from all parts thereof directly to all platforms. Incoming and outgoing shipments are thus handled with equal facility and despatch.

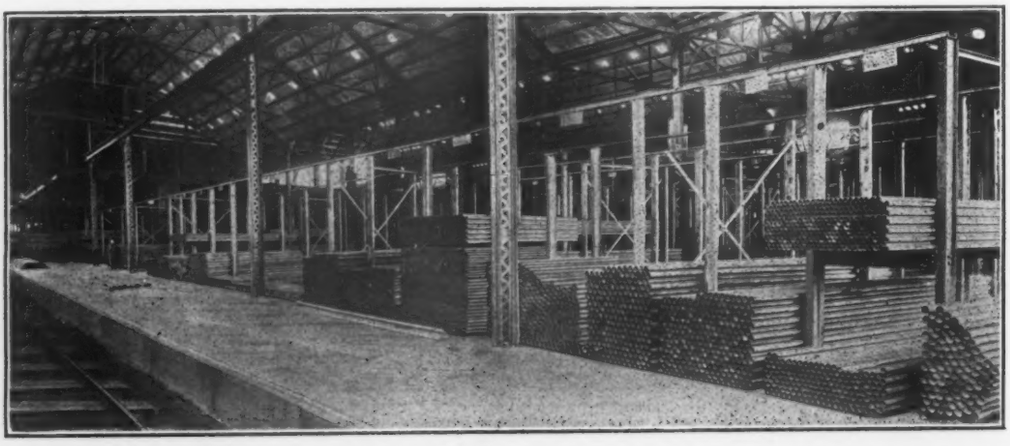


Fig. 2.—One of the Four Switch Tracks Serving the Tube Floor in Joseph T. Ryerson & Son's Warehouses.

Although integral as to its functions, the plant is divided into two parts by Sixteenth street, running east and west. The buildings to the north of this street include the general and shipping offices, departments for the storing of sheets, plates, hoops, bars, tubes, rivets and the varied assortment of iron and steel specialties which go to make up the complete line, and the boiler house. The opposite building south of the street is exclusively devoted to the storage and handling of structural material. In dimensions these two buildings are respectively 380 x 414 ft., and 395 x 500 ft., and both are of heavy steel construction. Together they have a storage capacity of 150,000 tons.

Fig. 3.—An Aisle of the Bar Floor in Joseph T. Ryerson & Son's Warehouses.

The North Warehouse.

About one-half of the north warehouse is two stories and provides floor space of over 100,000 sq. ft. The greater portion of it is roofed with tile and glass, and the east and south sides, including the office building, are faced with brick. Bars, tubes, galvanized sheets, rivets, metal working machinery and over 1000 specialties used in the various branches of steel construction are carried on the ground floor of this building. Bars are stacked on end in racks on either side of the isles, as shown in Fig. 3, the assortment regularly carried comprising 740 sizes; bands and scrolls are stored in adjoining aisles in the same manner.

To the right of the bar sections, as indicated in the plan drawing, are the boiler tube racks; these are framed of structural steel with separate divisions for each size and are conveniently located near one of the three tracks entering this building. In a large bay on the west side of the building galvanized sheets are stacked in piles according to gauges and sizes, and across the switching tracks to the northward is a space devoted to boiler heads, braces, lugs and other specialties of like character; this section is shown in Fig. 4.

To the left of the galvanized sheets are nine isles occupied by rivets. Experience has demonstrated that these are handled more speedily and economically by hand than with mechanical devices, and therefore no carrying equipment is provided in this section. An inclosed machinery stockroom is built in on the ground floor in the western bay of the building, and is covered with a removable roof, so that heavy machines may be handled in and out by the crane which traverses this bay.

Views of the second floor, shown in Figs. 5 and 6, give some idea of the extent and arrangement of the plate and back sheet stocks carried, which embrace over 600 sizes. Each pile is composed of a single size and all are arranged in bays, according to grade and thickness.

The Comprehensive Crane Service.

A notable feature of these warehouses is the exceptionally complete and flexible system of electric crane service that covers practically the entire area of all floors. There are in all 16 high speed traveling cranes of from 10 to 20 tons capacity, and over 20 smaller

cranes and electric hoists, ranging in capacity from one to five tons. In a double runway over the switch track at the east side of the north building are two 10 ton Case electric cranes, fitted with carriages that can be run off the crane bridge proper to a system of I beam trolleys. By this means the entire storage system is traversed

building serve the team shipping floor, the plate and sheet floors above—which it divides—and the sheet and plate shears located at the side and midway of the bay; these are supplemented by three 3 ton Sprague electric cranes covering the three short bays at the entrance of the main driveway.

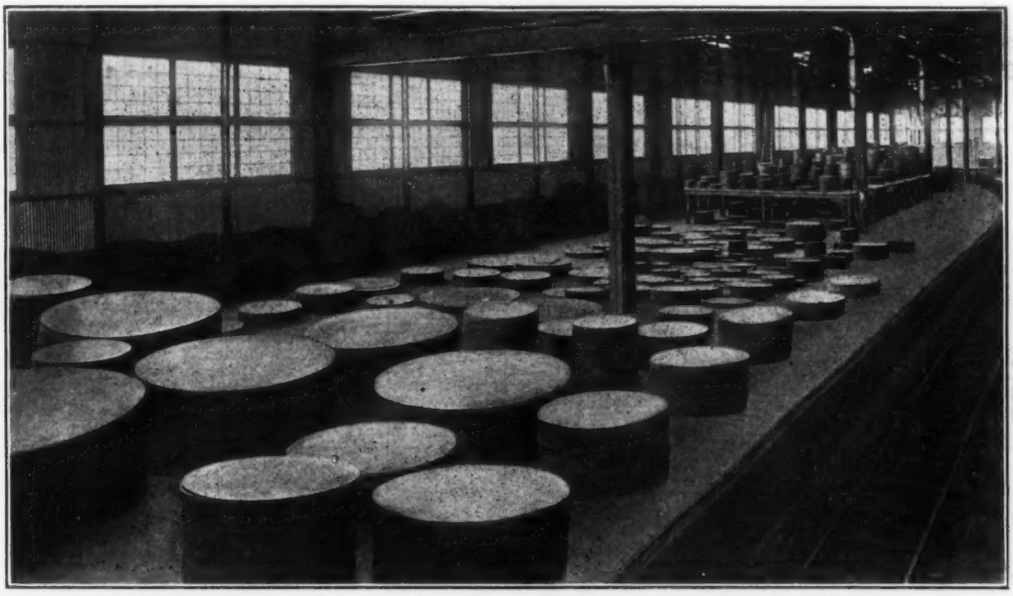


Fig. 4.—A Section of the Floor for Boiler Heads in Joseph T. Ryerson & Son's Warehouses.

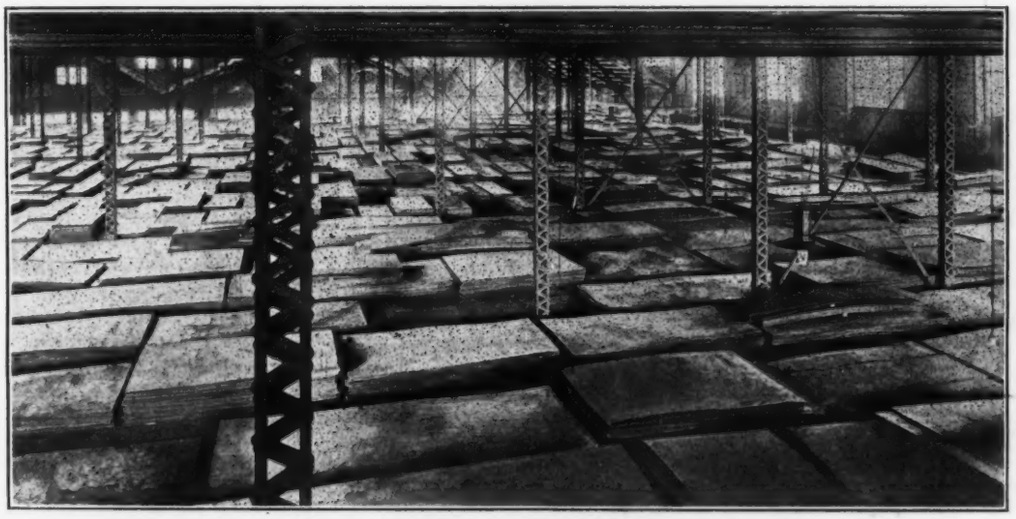


Fig. 5.—One Corner of the Plate Floor in Joseph T. Ryerson & Son's Warehouses.

Fig. 6.—An Aisle of the Sheet Steel Section in Joseph T. Ryerson & Son's Warehouses.

through the several aisles on the upper and lower floors, so that any portion of the warehouse may be reached by cranes, and loads can be carried to or from cars or wagons to the shearing machinery without transfer.

Two 5 ton Case cranes in the central bay of this

One of the shears, all of which are of the guillotine pattern, is of extraordinary size, being, it is claimed, the largest of its type ever built. It weighs 130 tons and has capacity for cutting 12 ft. of 2 in. steel at one stroke. One other Case crane, of 15 tons capacity, in the west

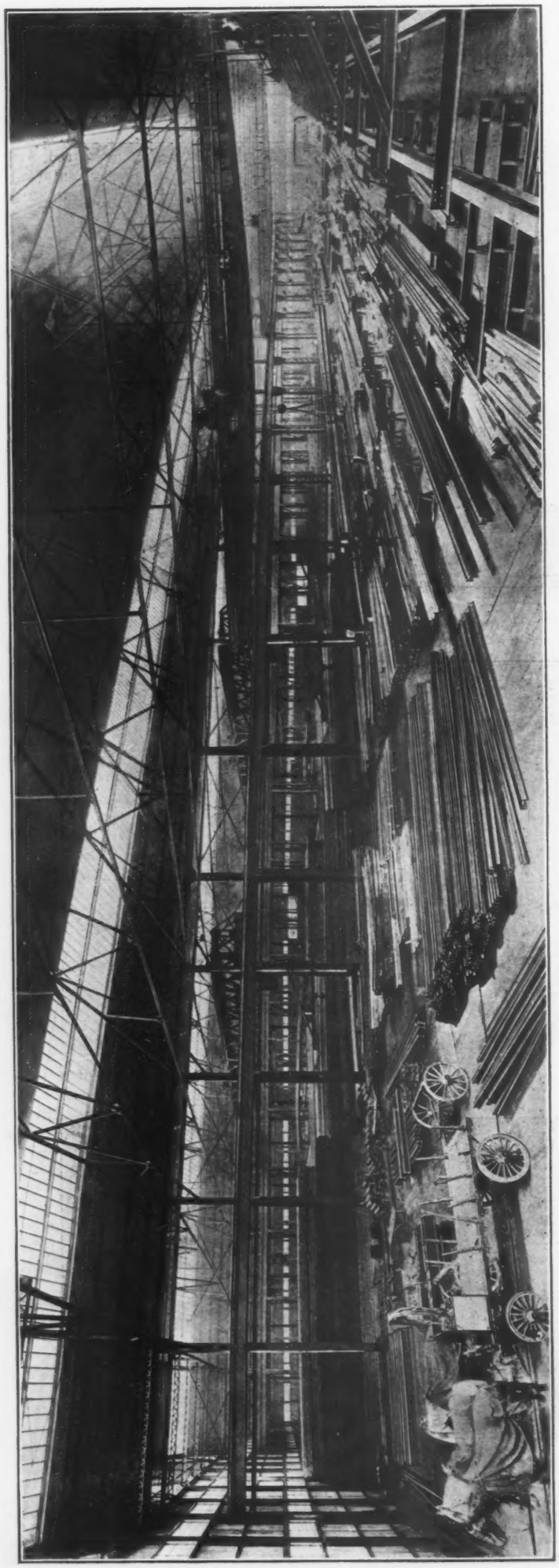


Fig. 7.—Interior View of the Structural Warehouse of Joseph T. Ryerson & Son.

bay, serves the machinery room and specialty section at the north end of the warehouse. In the adjoining bay, where the galvanized sheets are stored, provision is made for a similar crane, which has not yet been installed.

In addition to the railroad shipping facilities supplied by switching tracks there is in the central bay of the north building a loading area large enough to accommodate a number of wagons; entrance to this section is through two wide driveways opening into Sixteenth street. This space, like other loading platforms throughout the plant, is accessible to the entire warehouse crane service and is also adjacent to a large Otis electric freight elevator opening between the shipping bays and the sheet storage rooms on the floor above.

The South Building.

The structural warehouse on the south, a general interior view of which is shown in Fig. 7, is also of steel construction with corrugated iron roof and skylights. It is divided into five bays, each 500 ft. long and 45, 65, 75, 100 and 110 ft. wide, respectively, which are spanned by eight high speed traveling bridge cranes ranging from 3 to 10 tons capacity. Supplementing this handling equipment are two radial wall jib cranes, roller tables, hoist systems used in connection with the shearing machinery, and a tram track extending across the building near the center and at right angles with the crane travel.

The three cranes serving the 100 and 110 ft. bays are of 10 tons capacity each and are equipped with two trolleys operated from stationary cages. These cranes have a bridge travel speed of 350 ft. and a trolley travel speed of 175 ft. per minute. In the bay immediately north of these sections is a 75-ft. crane of the transfer type, having two trolleys equipped with I-beam clings for handling material of long lengths. These hoists have a capacity of 5 tons each, and like the larger cranes are operated from the stationary cages. Two 65-ft. cranes, each with two 5-ton trolleys, serve the next bay, while the next and last one on the north side of the building is covered by two 45-ft. 3-ton cranes of the same general type.

All of the cranes in this building were built by Pawling & Harnischfeger and the Case Mfg. Company. They are supplied with motors of 220 volt 60 cycle 3 phase alternating current made by the Westinghouse Electric & Mfg. Company and the General Electric Company. A carefully designed motor driven roller table system extends in two trains across the entire plant, bisecting all bays about midway of their length, and is arranged to feed the high speed friction saws and heavy shearing machinery.

Machinery Equipment.

Included in the equipment for the rapid cutting of structural material there are installed, in addition to angle and plate shears, three high speed friction saws designed by the company's

engineers. These machines are mounted on steel sliding carriages which move backward and forward in V-shaped grooves on a structural steel and cement foundation. They carry saw blades 52 in. in diameter and are motor driven at a peripheral speed of 27,000 ft. per minute, the saw carriages being controlled by motor driven triplex pumps. The fact that a 24 in. 100 lb. beam is cut through in less than 20 seconds conveys some idea of their cutting capacity. Material is carried to these saws by the roller tables, which are also motor driven. A large Ingersoll-Rand air compressor supplies power for the operation of the pneumatic tools and appliances.

A boiler house located at the northeast corner of the plant site contains two 150 hp. internally fired Morrison corrugated flue furnace boilers, which at the present time are not required for power service, since all of the power tools are supplied with independent motor drive.

As regards completeness of detail and adaptation to comfort and convenience in design and arrangement, the new offices of the company, occupying the stone trimmed brick structure on the north side of Sixteenth street and flanking on Rockwell street, form a conspicuous feature of the plant. This building, four stories in hight, has a floor space of over 30,000 sq. ft. on each floor and contains in addition to the general offices a number of separate rooms devoted to the storage of special grades of sheet steel, tool steel and specialties. It also includes a well appointed restaurant, a dormitory, a library, a barber shop and reading rooms.

The general offices proper occupy the top floor of the building, and in addition to the side windows receive light from above through saw tooth skylights. All of the office rooms are heated and ventilated by an air washed blast system operated by motor fans, and by means of a system of exhaust fans by which the air in the rooms is changed every eight minutes. The heating and ventilating system was installed by the Andrews & Johnson Company, Chicago. The architectural designs and plans for the plant were supplied by Howard Shaw, and the engineering features of its construction were developed and supervised by Ritter & Mott, engineers.

Falls Hollow Staybolt Tests.

The following results of vibrating tests of eight samples of hollow staybolt iron manufactured by the Falls Hollow Staybolt Company, Cuyahoga Falls, Ohio, have been certified to by W. K. Hatt, professor of civil engineering and director of the laboratory for testing materials at Purdue University, under date of May 7, 1908:

No.	Tension load. Pounds per square inch.	Revolutions per minute.	Number of revolutions to rupture.
1	4,000	100	10,188
2	4,000	100	13,123
3	4,000	100	8,339
4	4,000	100	9,363
5	4,000	100	8,868
6	4,000	100	10,880
7	4,000	100	11,888
8	4,000	100	5,318
Average			9,746

The tests were made on an Olsen staybolt machine, in accordance with the specifications recommended by the Committee on Staybolts of the American Society for Testing Materials. These specifications include the following:

Tensile strength, not less than 48,000 lb. per square inch.

Per cent. of elongation in 8 in., not less than 28.

Per cent of contraction of area, not less than 45.

Must stand 6000 revolutions, when one end is fixed and the other end (8 in. from fixed end) is moved in a circle of 3/32 in. radius, while the bolt is under a tension load of 4000 lb. per square inch.

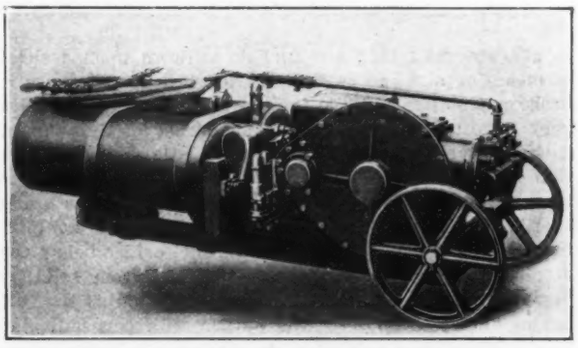
The bolts were threaded with standard staybolt dies —12 threads to the inch.

The Cleveland-Cliffs Iron Company has decided to install the Gayley dry blast at its Pioneer Furnace No. 2, Marquette, Mich., and has retained Frank C. Roberts & Co., Philadelphia, as the engineers for the plant.

A Westinghouse Portable Compressor Outfit.

For some years the Westinghouse Air Brake Company, Wilmerding, Pa., has built a portable motor-driven vertical air compressor outfit for cleaning electrical and other machinery and supplying compressed air for various purposes in and about engine rooms and shops. In some places and under some conditions of use this equipment was not as convenient as could be desired, which prompted the company to bring out the horizontal outfit herewith illustrated. It embodies the same general principles as the vertical plant, but is of somewhat different arrangement and more compact construction.

The new horizontal plant consists of a motor-driven air compressor with one or two brazed reservoirs, an electric pump governor, and the usual accessories, such as switch, fuse blocks, gauge, safety valve, insulating hose connection, and hose with nozzle. The truck frame is made of angle iron bent into the shape of a U, and is cross braced at the back under the compressor. The rear axle is of square steel bolted directly to the frame. The compressor bed plate bolts to the frame at each corner. The reservoirs rest upon angle iron supports, and are held in place by wrought iron straps bolted to the



A Portable Motor-Driven Horizontal Air Compressor Blowing Outfit Made by the Westinghouse Air Brake Company.

frame. A simple switchboard is placed between the reservoirs and the compressor, upon which the governor, fuse blocks and switch are mounted. The position of the governor renders it easily accessible for adjustment and inspection. Ample space is allowed for opening the commutator door and to examine the brushes. The compressor cylinder head can be removed and the pistons taken out without disturbing the rest of the apparatus.

If it should be necessary, the gear case cover can be easily removed by first removing one of the rear wheels. All oil fittings are easily accessible. The rear wheels are 18 in. diameter, and the front wheel 8 in. diameter, and the latter can be turned through an angle somewhat greater than 180 deg. The handle is bent so that when turned back between the reservoirs, the end of it will not protrude above the other apparatus on the truck. When the reservoirs are used, they are drilled symmetrically, so that if removed either one can be put back on either side. The outfit is 31 in. wide, and low enough in hight to be stored under a bench. The disposal of the apparatus on the truck brings about two-thirds of the weight on the rear axle.

The type shown in the illustration can be varied in arrangement to suit conditions, and the truck furnished with roller bearings if preferred.

The Chicago branch of the Crucible Steel Company of America, now located at 64 South Clinton street, will shortly move into its new warehouse at 117-121 West Washington street, which has just been completed. The building is 60 x 152 ft., three stories, of heavy steel construction, and contains 26,400 sq. ft. of storage floor space. About 7500 different sizes of tool steel are carried in stock, and the warehouse has been especially designed for their convenient storage and handling. The front part on the second floor will be occupied by offices, and will be finished in oak. The work of removal will be begun next week, and the company expects to be fully installed in its new quarters by the middle of the month.

Liquid Fuel in the Brass Foundry.*

BY W. N. BEST, BROOKLYN, N. Y.

The success obtained from the use of liquid fuel depends largely upon the hydro-carbon burner used. There are many different burners upon the market to-day, of which the majority are of the internal mixing or injector type. In these the fuel and the atomizing agent flow out in the same direction. In another type of burner, known

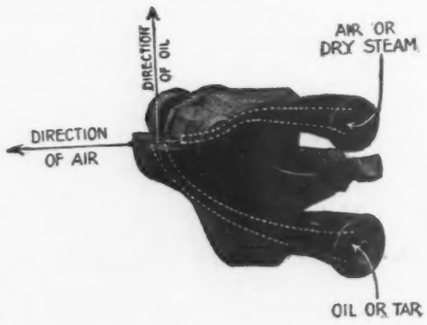


Fig. 1.—Hydro-Carbon Burner.

as an external mixer, the fuel flows down upon a sheet of steam or air, and is thus carried into the furnace or firebox of boilers. While the more volatile fuels require very little atomization, yet if the burner used is not of such form and capacity as to insure the thorough atomization of any grade of liquid fuel, the foundryman will be in a sad predicament whenever a shipment of low grade fuel is sent him. I always recommend an external mixing burner, as in Fig. 1, having the fuel orifice below the atomizer cavity. This prevents the fuel from solidifying or carbonizing over the atomizer slot; and as the fuel passes out of the nose of the burner on a perpendicular line, while the atomizing agent passes out horizontally, the thorough pulverization or atomization of the fuel as well as the even distribution of the flame in the combustion chamber is effected. I also recommend the use of a special regulating cock, Fig. 2, which insures both a steady flow of fuel to the burner and the minute regulation of the quantity. The plug of this regulating cock has a V-shaped knife edged opening on the intake side, while the exit has a large opening, and thus the residuum which may be in the fuel cannot stop the flow. If a globe or needle valve be used to regulate the fuel supply to the burner, the space the valve parts from the valve seat is so slight that the residuum in the fuel soon collects therein, causing great annoyance. This is especially noticed when low gravity fuels are used, for then often the valves become so clogged that the supply of fuel is entirely cut off.

Theoretically, it requires 13½ to 14½ lb. of air to effect the perfect combustion of 1 lb. of oil. Allowing 14 lb. at 62 degrees F., it would require 184.97 cu. ft. of air to effect the perfect combustion of 1 lb. of oil, or at 100 degrees F. it would require 197.34 cu. ft. In actual practice it has been found that it requires from 17½ to 19½ lb. of air to effect the perfect combustion of 1 lb. of oil. Allowing 19 lb., at 62 degrees F., 249.68 cu. ft. are required, or, at 100 degrees F., 267.82 cu. ft. Considering 1 gal. of oil to weigh 7½ lb., practically it requires 142½ lb. of air to effect the perfect combustion of 1 gal. of oil,

Fig. 2.—Safety Regulating Cock.

or 1872 6-7 cu. ft. of air at 62 degrees F. At 100 degrees F., 2009¼ cu. ft. are required. If compressed air be used as atomizer, only about one-sixth of the air needed for the perfect combustion of the fuel is obtained through the burner, the rest being furnished through an ordinary air nozzle placed immediately under the burner. This air is at 3 or 4 ounce pressure. As to the cost of compressing air per cubic foot, the conditions in no two plants are precisely alike. In some works steam driven compressors are used, while in others there are compound compressors. Some employ electrical power to compress the air, while others use gasoline engines. Again, if steam driven compressors are considered, the many grades of coal vary as much in calorific value as they do in price.

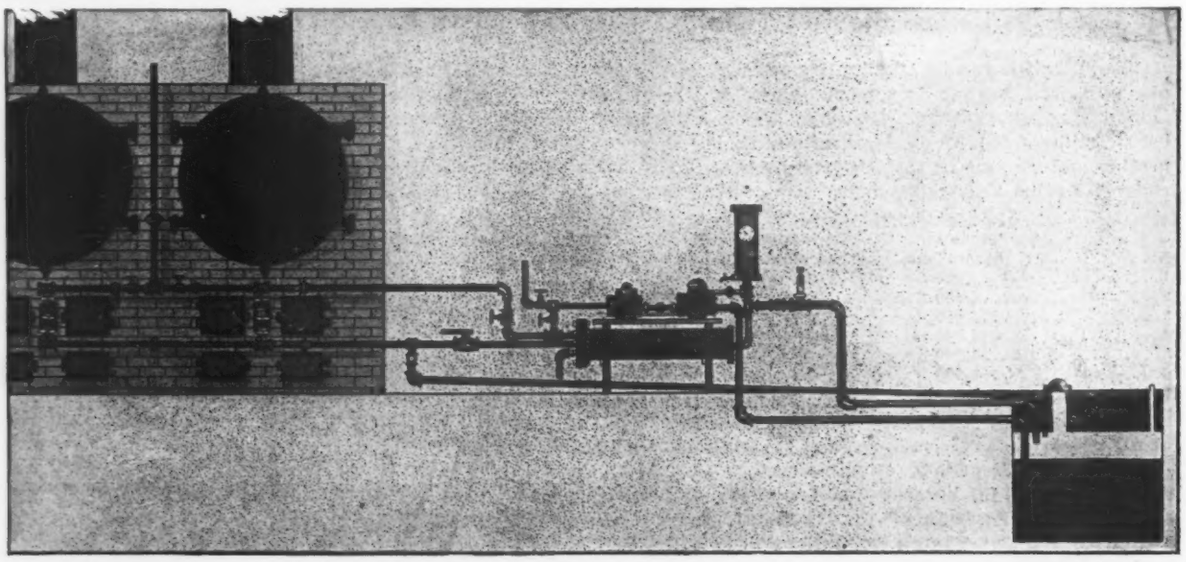


Fig. 3.—Piping for Oil Burning Under a Horizontal Tubular Boiler.—The Same System of Piping, Tanks, &c., Is Used for Melting Furnaces.

To those who contemplate using liquid fuel in their plants a few words in regard to the supply tank, &c., may be of interest. A piping system is shown in Fig. 3. To conform with the requirements of the underwriters as

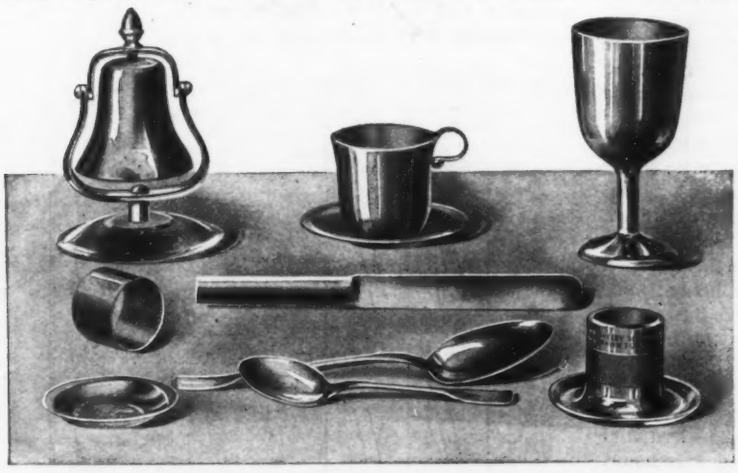
* From a paper read at the Toronto meeting of the American Brass Founders' Association, June, 1908.

well as the various city ordinances, it is necessary that the fuel supply tank (varying in capacity from 1000 to 10,000 gal.) be placed some distance from the buildings. It should be provided with a vent pipe extending at least 2 ft. higher than the shop building and placed 10 ft. or more from any chimney or smoke stack. Ten or 12 lb. pressure is usually maintained on the fuel line and an ordinary steam driven brass lined duplex pump or a belt driven triplex plunger pump may be used to pump the fuel. A pulsometer with gauge and a pressure valve with an overflow pipe connecting with the storage tank should always be placed upon the fuel line, so that when one or more of the burners are closed off an even pressure will be maintained upon the fuel supply pipe line to the other burners by the release of excess oil through the pressure valve, the fuel returning to the storage tank through the overflow pipe.

Whatever the type of furnace, I always recommend that a combustion chamber built on scientific lines be used, for it directs the course of the heat in the furnace and provides for the union of the air requisite for perfect combustion with the fuel before they reach the furnace proper. Those who have given liquid fuel a thorough test have proven conclusively that it is the incomparable fuel for all work connected with the brass foundry, core drying as well as melting, &c.; but in order to obtain the highest possible efficiency modern equipment must be used in every detail, the fuel must be thoroughly atomized by the hydro-carbon burner, the fuel supply must be constant at all times, and the furnaces must be so constructed as to meet every requirement.

Unusual Products from Seamless Tubing.

The articles illustrated in the accompanying engraving seem ordinary until it is explained that they were all made from seamless steel tubing. It is not proposed to form eating utensils from such stock as a regular process of manufacture, but as indicating something of the possibilities of this material these pieces, selected from a set made for use at a banquet of the officials of the Shelby Steel Tube Company, are interesting. For example, the material may be hammered flat as in the knife blade and spoon handles, curved in or out as in the plate and the bowl of the spoon, left in its original form as in the napkin ring, expanded at one end to several times its original diameter as in the goblet, or formed into a bell. The possibilities suggested by these objects are but a few to the many more useful ones that have been found as indicated in the fact that over three hundred ways of using the tubing are practiced at present and new uses are constantly being found. As contrasts and wide extremes, a salesman, passing through a Western city, recently found the tubing in one case being used to make joints for artificial limbs and in another molds for chocolate creams.



Parts of a Dinner Set made from Shelby Seamless Steel Tubing.

Fearing that the United States Steel Corporation will not rebuild its tube mill in Shelby, Ohio, that was recently destroyed by fire, and desiring to have a similar industry that will keep the skilled workmen in that city who were thrown out of employment by the fire, the citizens of Shelby, at a public meeting held July 2, subscribed $100,000 toward the formation of a new company to build a new tube plant. It is proposed to form a company with a capitalization of $500,000 to be known as the Seamless Steel Tube Company.

The Nugent Friction Clutch.

Within the past year the Nugent Tool Company, Cincinnati, Ohio, has made material changes in the friction clutch it manufactures which are considered to be important improvements over its original form, as described in *The Iron Age* June 20, 1907. As first designed the clutch seemed to be as simple and compact as it could be made, but several modifications have been adopted which add to its advantages. The clutch is now manufactured with both metal to metal and wood to metal friction surfaces.

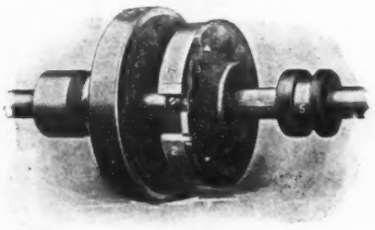


Fig. 1.—The Parts Separated.

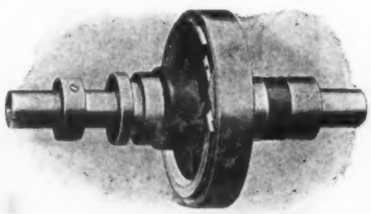


Fig. 2.—The Parts Assembled and Engaged.

The Nugent Friction Clutch.

As shown in Fig. 1, where the parts are drawn apart on the shaft, the sleeve which is intended to carry the split pulleys, sprocket wheels, sheaves or gears has an inside ring containing wood inserts of well seasoned hard maple blocks, with end grain exposed for the wear. Wherever it is possible to use wood on metal friction the power of the clutch is great in proportion to its size.

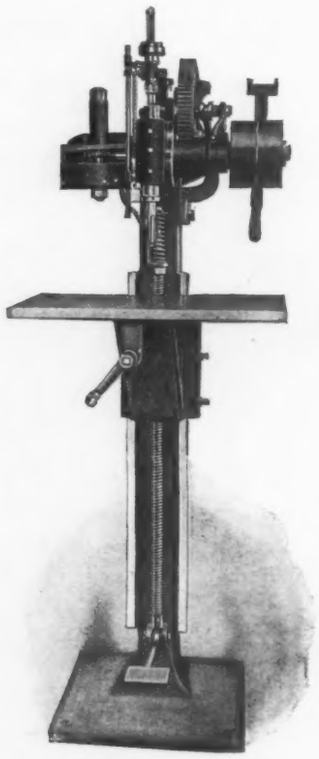
As originally constructed the shifting spool, 5 in Fig. 1, which forces the tapered feather key under the radial pin carrying the wedge to expand the friction ring, was guided on the shaft by a pair of steel pins inserted in the solid block. These pins have been dispensed with by providing a hub for the block 3 in the illustration. The feather key is never entirely withdrawn from this hub, which adds to the strength and general appearance of the clutch.

Fig. 2 shows the clutch after the parts have been set together on the shaft, and after the shifting spool has been operated so as to engage the clutch. One important advantage of the clutch is strikingly apparent in this illustration; there are no extending parts to endanger the hands, arms or to catch the clothing of a careless workman.

The Cincinnati Iron & Steel Company, Cincinnati, Ohio, is the exclusive selling agent for the Nugent clutch.

A Reynolds Automatic Screw Driver.

Among the several styles and sizes of automatic machines for driving wood and machine screws, built by the Reynolds Machine Company, Rock Island, Ill., is the one known as the No. 11, illustrated herewith. In its essential features it is much the same as the company's other machines, but it is even more completely automatic, for



One of the Special Automatic Screwdriving Machines Built by the Reynolds Machine Company, Rock Island, Ill.

where the others require a pressure of the foot lever for each screw driven, this one drives one screw after another as long as the lever is depressed. The spindle is reciprocated by a cam which is operated through a clutch by the foot lever. Ordinarily the work is fed by hand, but even this may often be accomplished automatically, making the operation of the machine exceedingly rapid. Naturally the machine is only intended for small screws and does not cover as large a range of screw sizes as the company's regular line of screw driving machines. The machine illustrated is principally designed for setting screws in small objects, such as piano action damper blocks, push buttons, &c.

With the exceptions mentioned above the machine is similar to the standard line of Reynolds automatic screw drivers. The screws are dumped into the hopper or magazine in bulk, where they are automatically arranged, and from which they are automatically taken one at a time. All the operator has to do is to place the work on the table and press the foot lever. After being taken from the hopper the screw is held by a pair of jaws until the driver descends and engages the slot in the head of the screw and forces it down into the work. The jaws are controlled by springs which permit them to open. The spindle is driven by an adjustable friction, which makes it possible to set screws as tight as desired and which allows the spindle to stop when the screw is home, thus avoiding marring of work or heads of screws. The spindle is intended to run at from 1000 to 1500 rev. per minute, so that the screw is driven in a fraction of a second, and the output of the machine is limited only by the ability of the operator to get the work under the spindle, and he has both hands free to do this. The table is adjustable on the column for work of different hight.

The standard type of machine is built in three sizes: No. 1 drives up to No. 6 or 8 screws up to 1 in. long; No. 2 drives up to No. 12 or 18 screws up to 1½ or 1¾ in. long; No. 3 drives the same range of sizes as No. 2 but up to 3 in. long. The company also builds a No. 13 machine, which is similar to the Nos. 1, 2 and 3 except that it has a gap in the column, giving it an increased depth of throat, so that wide flat work can be handled to better advantage. The No. 21 machine is also similar to the Nos 1, 2 and 3, but is provided with an offset extension for the spindle, allowing the driving of screws in positions where the overhang of other parts of the work prevents the use of the regular machine. The No. 22 machine is provided with two magazines, so that two sizes and lengths of screws can be driven at one handling of the work, not at once, but in any desired succession. It is built to handle the same range of screws as the Nos. 1 and 2.

All of the machines are usually equipped with tight and loose pulleys and a belt shifter, so that they may be driven direct from the line shaft, but a countershaft or motor drive can be furnished if desired. The driver in the larger sizes is made with an inserted blade, which can be replaced when worn. Each machine has ample power to drive screws anywhere that they can be driven by other means, and in many cases screws can be set without boring for them where it is impossible to do so by other means. The machines are claimed to be simple, efficient and durable, and not to require skilled operators.

A New Expanded Metal Corner Bead.

The corner bead has come to be standard in building construction, not only where metallic laths are used in fireproofing, but with wooden lathing as well. Herewith is illustrated a new corner bead for use with lathing constructed of expanded metal, recently introduced by the John L. Parker Company, Worcester, Mass.

The process of manufacturing the new bead is one in which there is no waste of material. The metal is first slit in a press, as shown in Fig. 1, the forming of the strip being partially accomplished at the same time. The second operation, in a special press, completes the work, the forming being finished and the strip expanded into the shape shown in Figs 2 and 3. The strips are then galvanized. It will be noticed that the expanded strips forming the sides of the bead pitch in opposite directions, giving a truss effect which increases the strength and rigidity. The strips are punched with holes at intervals

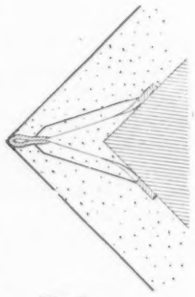


Fig. 3.

Fig. 1.

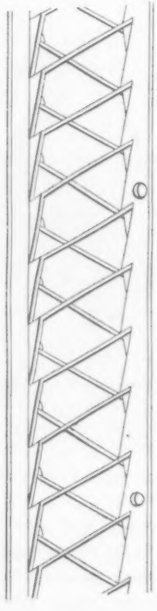


Fig. 2.

The New Expanded Metal Corner Bead Made by the John L. Parker Company, Worcester, Mass.

for nails, or are left without holes, in which case square headed tacks are used for fastening them in place.

The Cyclone Positive Friction Clutch.

Manufacturers of well and prospecting drilling machines have need of a friction clutch possessing special properties in order to stand the severe duty of driving the crank of a drilling machine. The constant jerking in handling the tools is destructive of the ordinary friction clutch, and at times, especially when the tool sticks in the hole on in pulling pipe, there is a momentary load of three to four times the average, which will cause a plain friction clutch to slip. The Cyclone Drill Company, Orrville, Ohio, after several years' experimenting, has recently produced a clutch which is claimed to be entirely satisfactory. It is in reality a combination friction and positive drive clutch. The positive drive takes effect automatically when a suddenly applied load exceeds the carrying capacity of the friction clutch, which is two to four times greater than that of the ordinary friction clutch.

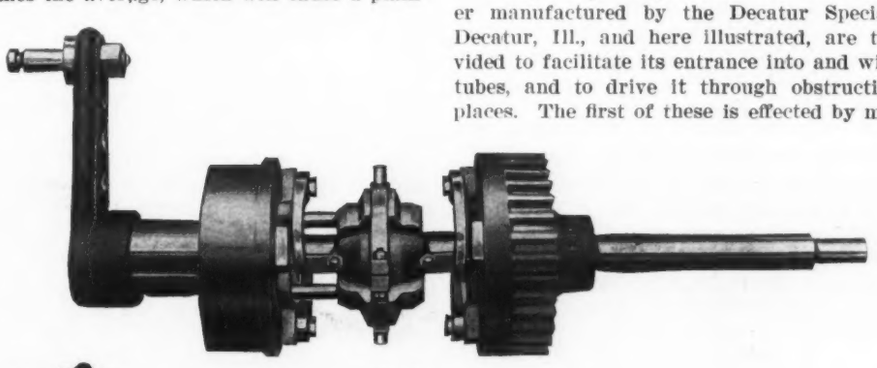


Fig. 1.

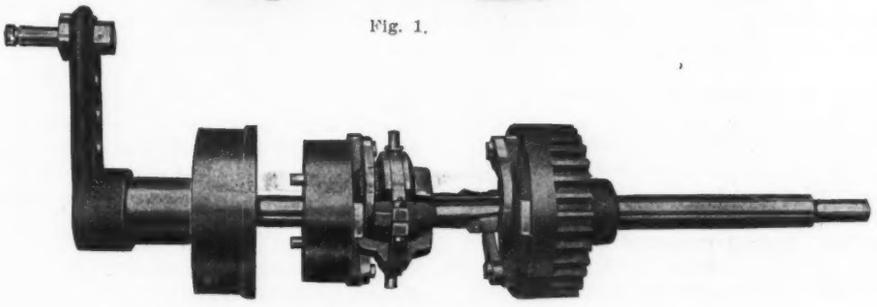


Fig. 2.

The Combination Positive Friction Clutch Made by the Cyclone Drill Company, Orrville, Ohio.

Fig. 1 shows the clutch complete with the crank, crank shaft and hoisting gear. The shifting lever when thrown to one side operates the crank; when thrown to the opposite side operates the hoisting gear, and in its central position leaves both crank and gear disengaged. Fig. 2 shows the crank drawn back on the shaft, exposing the male friction member and the ends of the tool steel pins which produce the positive drive.

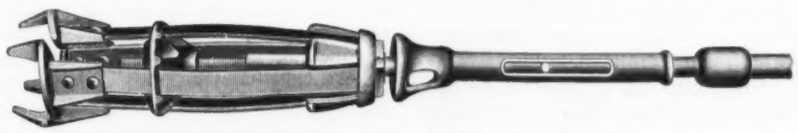
One lever controls all of the movements of the clutch. A partial movement of the lever to right or left engages the friction clutch to drive the crank or gear, and carries the entire load up to 25 to 40 per cent. overload. When the full tension of the friction clutch is applied the shifting lever can be moved somewhat farther, compressing the two steel pins between the face of the female member of the clutch and compression springs back of the pins. This sets the positive drive ready to operate automatically, and should the load on the clutch cause it to slip, within less than a fifth of a revolution the pins will register with and enter the holes in the clutch, making the drive positive. When the clutch is released the positive drive pins are retracted before the friction surfaces are disengaged.

Being operated by one lever and by one movement, this clutch meets the requirements for which it is designed, and it is believed to be the first clutch equal to the hard service which is encountered in driving a drilling machine crank. The clutch is suitable also for use as a single clutch on any piece of machinery where the load is irregular and momentarily excessive.

The Faries Boiler Tube Cleaner.

The principal improvements in the Faries tube cleaner manufactured by the Decatur Specialty Company, Decatur, Ill., and here illustrated, are the means provided to facilitate its entrance into and withdrawal from tubes, and to drive it through obstructions or uneven places. The first of these is effected by means of a sliding binder ring which alternately compresses and releases the spring arms carrying the cutter heads. Owing to a slight curvature of the springs expansion is permitted as the binder ring moves forward under pressure and the reverse movement on withdrawal causes compression sufficient to give it free passage. The extent of adjustment in this respect is controlled by a screw on the end of the push rod, by means of which the position of the binder ring can be advanced or retracted by turning either the scraper or handle, the latter being practicable when the scraper is in the flue.

To facilitate driving the cleaner through tight or uneven places, a ram in the form of a slip joint is provided. This admits of a limited withdrawal of the handle without moving the scraper and when shoved quickly forward produces a powerful ramming stroke.



The Faries Boiler Tube Cleaner Made by the Decatur Specialty Company, Decatur, Ill.

The wearing edges of the cutter heads are made of substantial malleable castings with smooth edges for fire tubes and serrated edges on those designed for water tubes. Cleaners for the latter use are also of heavier construction throughout.

Fire tube cleaners are made in sizes to fit tubes from 2 to 6 in. diameter, varying by ¼ in., each size of tube requiring an individual tool of corresponding size. Cleaners for water tubes are made only in sizes for 3½ and 4 in. tubes. The adjustable feature is limited to the requirements of variation and unevenness in tubes and does not extend to interchangeable use of the same tool in tubes of more than one size.

The Brown Iron Ores of Alabama.—IV.

BY WILLIAM B. PHILLIPS.

With the exception of one deposit in Chilton County, occurring in altered strata of what is possibly carboniferous, the brown ore deposits of Alabama must be regarded as segregations in clay. The ordinary term "pocket" may be retained, as it is in common use. At the same time it must be remembered that some of these pockets are of very large extent, both laterally and vertically, one of them at least having been mined to a depth of 300 ft. below the original crest of the hill, with a boring 60 ft. deeper, or a total depth of 360 ft. that is known. Excluding the few deposits in which a more or less ferruginous sandstone may be found, the foreign matter associated with the ore is clay and chert. The clay may be of almost any color, brown, yellow, reddish and purplish predominating, and of many degrees of plasticity.

Freeing the Ore from Clay.

If it were merely a question of removing the clay from the ore by a washing process, the utilization of brown ore "banks" would give no special trouble. But the clay is not always of such a nature as to yield to suspension in water. It is often of a putty-like consistency, rolls into balls which enclose small particles of ore, and refuses to be freed from the ore by any water treatment in ordinary use. It is true that such clay may be removed over a picker belt, but this entails additional expense and does not recover the ore that is mechanically held in the balls.

It is a fortunate circumstance that most of the Alabama brown ore deposits do not carry an excessive amount of this kind of clay. Still, it is present in practically every deposit and has to be reckoned with in the general operations. The very tenacious clays are generally of a much lighter color than the others and carry much more alumina. It will generally be found that when the ore runs high in alumina the fault is in the washing and especially in the failure to remove the light colored clays. They are not easily disintegrated in the logs, have a pronounced tendency to ball and to roll around with the ore, coming out with it at the head of the log and so into the cars, unless picked out on the belt. It is a rule almost without exception that brown ore carrying a considerable amount of alumina—2.50 to 5 per cent. and above—has not been properly washed. The ore itself carries but little alumina; the clay with which it is mixed always carries a large amount of alumina, and the presence of this objectionable ingredient in stockhouse ore is proof of insufficient washing. In the logs themselves there is very little foreign material removed from the ore except the clay, and if the ore is more or less honeycombed the clay fills the small cavities and goes over with the ore. It is partly on this account, but more especially on account of included chert, that it is advisable to crush the ore before it goes to the logs. By the washing process it is not possible to free the ore from included clay or included chert unless the previous crushing has already separated the one from the other.

Almost any type of ordinary log washer or disintegrating screen will remove clay from ore if opportunity is given for the suspension of the clay in the water; but if the clay cannot be intimately mixed with sufficient water to remove it the log cannot perform its duty. No rule of general application as to the amount of water required per ton of ore can be given. With some kinds of material 500 gal. per ton of ore is enough; in other places 1000 gal. is not too much. Much depends upon the nature of the material to be washed, this being, perhaps, the chief consideration; but the manner in which the water is applied is also most important. These factors have to be settled for each locality, and it often happens that the same "bank" will require varying quantities of water from day to day. One cannot have too much water. In some places in Alabama there is an excellent custom of dumping the material from the mine cars into a large headbox provided with grizzlies made of railroad iron. Into this box heavy streams of water play, and the entire material is washed down a long trough, lined with V-shaped castings, into the log washers. In this manner the mixture of clay and ore is given a thorough tumbling about in a rapid stream of water and reaches the washer in fine condition for subsequent treatment. This procedure may be adopted if there is not much lump ore. Where this is present it should go over the grizzly and into a chute to the loading bins, if it is not to be crushed.

Jigging for the Removal of Chert.

There is no general rule applying to the quality of the lump and the gravel ore. In some localities the lump is better than the gravel, or, at least, as good, and in others the gravel is better than the lump. Where the lump ore is admixed with chert, which cannot be freed from the ore except by crushing, the gravel ore is preferred, provided there is not an excess of chert in the gravel. No log washer or disintegrating screen will remove chert from brown ore; it must be jigged out. Concerning jigging, it must be said that the Alabama brown ore mines are not equipped with the best modern appliances. Here is the weak point in all of our practice. At the best establishments the ore is well washed and the clay is practically all removed, save such as is held in cavities in the ore. But the chert is not removed and high silica ore results. This leads to excessive variations in the content of silica, variations of from 11 to 26 per cent. of silica from the same mine having been observed during one month. If high alumina is to be taken as proof of insufficient washing, high silica means insufficient removal of the chert. The one can be corrected by proper washing, the other by proper jigging. Proper jigging means proper sizing and the sending of each size to its own separate jig. It means a small additional expense per ton of ore, this varying from 10 to 15 cents per ton, according to circumstances. Under the most favorable conditions the actual expense of jigging may be brought below 10 cents. We have in brown ore "banks" two things to get rid of and one thing to save: Clay and chert to throw away, ore to ship. The present appliances for getting rid of the clay are fairly effective, although certainly susceptible of improvement; but the proper appliances for removing the chert are not in use. We build plants, install washers, pipe lines, conveyors, &c., for getting rid of the clay, and this is done fairly well. But the chert is just as troublesome, costs just as much to flux in the blast furnace, and interferes just as much in the conduct of smelting operations as the alumina in the clay. Restricting our brown ore mining to such deposits as may profitably be handled by a simple washing operation, we are restricting the supply of ore, sending material to the furnace which should never be shipped, adding to the cost of making iron, and allowing many a property which could be worked to remain in idleness.

A Needless Limitation of Supply.

It has happened more than once during the last two years that furnaces in Alabama were in urgent need of brown ore, but it could not be supplied, and for the reason that brown ore operations were confined to such deposits as could be beneficiated by a washing process only. We are putting brown ore deposits on the black list because we do not acquaint ourselves with what is being accomplished elsewhere. It is a question of machinery and water and of knowing how. Both the log washer and the jig act on the same principle—the difference in specific gravity between the ore and the clay and the ore and the chert—only they act in a different manner. If the clay were not lighter than the ore it would not mix with water so readily nor be so easily removed. Its physical condition enables it to be suspended in and go off with the water. Much of it is so fine that it requires hours to settle. The specific gravity of the clay may be about the same as that of the chert, but it is infinitely finer and on this account much more easily suspended in water. Such particles of the ore itself as are of the fineness of the clay go off with it and there is some loss from this source, but not very serious under ordinary conditions.

Brown ore of 48.90 per cent. of iron has ordinarily a specific gravity of 3.474. The ordinary chert with which it is mixed has a specific gravity of 2.57. The

difference is ample for their successful separation. The higher the specific gravity of the ore the greater the content of iron; the lower the specific gravity the lower is the content of iron. Ore of 31.20 per cent. of iron has a specific gravity of 3.284, and ore of 57.40 per cent. of iron has a specific gravity of 3.840.

Attempts are made to remove chert, sandstone, &c., on a picker belt, but any one who has had much experience in such matters must confess that this is not at all satisfactory. To attain even partial success the cost of hand picking is almost as great as the cost of the jigging and the actual gain in metallic iron far below that in jigged ore. Furthermore, there cannot be much uniformity in the ore thus improved, especially since the material is thoroughly wet and it is difficult for the sorters to distinguish between what is almost good enough to pass and what is really good. Hand picking is slow, costly and ineffective. It is not meant that jigging is the panacea for all the ills of the brown ore industry, but it is the cure for high silica and irregular composition. The ordinary log washer or the disintegrating screen will remove the clay and give well washed material, but it will not remove the chert from the ore. This article is concluded with the observation that it is no more difficult to remove the chert from ore that has been washed than it is to remove the clay from run-of-mines material.

The Lake Superior Mining Institute.

At the recent annual meeting of the Lake Superior Mining Institute these officers were elected for the ensuing year: President, M. M. Duncan, Cleveland-Cliffs Iron Company, Ishpeming, Mich.; vice-presidents, W. J. Richards, Corrigan, McKinney & Co., Crystal Falls, Mich., and Chas. Trezona, general superintendent of Vermillion range mines for the Oliver Iron Mining Company, Ely, Minn.; managers, T. E. Keese, Ishpeming, Mich.; W. J. Uren, Calumet, Mich.; L. M. Hardenburg, Hurley, Wis.; treasurer, E. W. Hopkins, Commonwealth, Mich.; secretary, A. J. Yungbluth, Ishpeming, Mich. The last two were re-elections and deservedly a tribute to the two men who have served long and well in their respective positions. The election of Mr. Duncan foreshadows a meeting next year on the Marquette Range. Seventy-two applications for membership were favorably considered, bringing the active membership to 547. The treasury balance showed $4670 on hand. Some 240 members participated in the trip on the Minnesota Range, while 40 or 50 more joined the party at points along its route.

In the course of his presidential address, delivered at Virginia, President T. F. Cole referred to the brightening outlook for the metals, especially iron and copper. He spoke of the conservation of natural resources, not alone in the saving of what materials we are using but in the utilization of others that lie about us, referring to the water power of the St. Louis River near Duluth, which, when fully utilized, will equal the consumption of 1,300,000 tons of coal annually. This power the institute had visited the preceding day. He referred to the time when mining companies would be compelled to use steel for timbering; said that the Oliver Company is even now considering the use of this material in main lateral openings, as it is now using it in shafts, and he looked for the time to be near at hand when that company would adopt steel for main horizontals in many of its mines. He outlined the future of the new Minnesota plant of the United States Steel Corporation, stating that there was every reason to expect that this works would supply all that part of the trade in steel lying west of the great lakes and north of a line drawn between Duluth and, say, Denver, so far as that territory could be supplied by steel from Lake Superior ores. To include all this region, which is geographically nearer Duluth than Chicago or other steel making point of prominence, there were needed but a few short railroad links to connect nearby points and give the proper rates.

Those attending the recent meeting visited three points of especial interest and importance—the Great Northern Power Company's works, near Duluth; the Norman mine, near Virginia, and the Oliver Iron Mining Company's operations at Coleraine. These presented novel conditions. The power plant referred to has already been fully described in *The Iron Age*. At the Norman mine the owners are reopening, by stripping, an old underground property, once mined by rooms and caving. The difficulties were seen of taking off the surface of a mine where the steam shovels employed in stripping may without warning sink out of sight in some abandoned cave. This inspection called attention to the drift toward steam shovel operations as against any other method of winning large tonnage. But that same tendency was still better shown at the Monroe-Tener group, near Hibbing. Here is a mine that the Oliver Iron Mining Company has opened on plans made but four years ago and then considered the most elaborate example of a milling operation to be found. The overburden was so thick—75 to 90 ft.—that is was not considered feasible to open for the operation of shovels, loading directly on railroad cars. The mine was to be the biggest and best milling pit on the Mesaba. But now, before any considerable quantity of ore has come out of the property, all this is to be changed, and a mile-long open cut approach is being put in for a track, and the mine is to become an open pit steam shovel proposition. At Coleraine the Oliver Company has now so far completed its experiments in the concentration of the Western Mesaba sandy ores that orders have just been given for the erection of the permanent washery. The experimental plant, erected two years ago, and capable of treating 150 tons per hour, has demonstrated that the ores can be washed, a 35 per cent. ore brought up to 59 or 60 per cent., the sand eliminated, the paint rock gone, and much of the fine ore lost. Losses, however, do not run to above 13 per cent. at present, and, with certain additions contemplated, are to be cut lower. It would seem that a series of settling tanks would be of value, but here the furnaceman steps in and demurs; he does not want the fine ore they would save.

D. E. W.

Rail Steel from an Electric Furnace.

A paper dealing with recent developments of the Kjellin and Roechling-Rodenhauser electric induction furnaces was read before the Faraday Society in London, May 23, by J. Härdén. A synopsis in the London *Times Engineering Supplement* says that in the original Kjellin furnace some disadvantages appeared when dealing with material which had to be refined and treated in large quantities, as in making rail and other steel at the Röchling Iron Works, at Völklingen. Mr. Rodenhauser and Dr. Schönawa applied themselves to the task of adapting the Kjellin furnace to these requirements, the result being the production of the "combined furnace." The principal feature is a heavy secondary winding of copper cables connected to conductive plates built into the furnace wall. The plates do not conduct well when cold, but when the furnace is charged with molten raw material they act as conductors of the second class. The result is that about one-half of the power is transmitted to the charge by induction in the rings, and the rest of the power through the side plates. Three furnaces, taking from 1 to 1½ tons, are now in operation at a power factor of 0.7 to 0.85. The finished product is distinguished for its great strength and homogeneity. Rails have been made with a much higher bending and breaking point than ordinary Bessemer or Thomas rails, and such rails command from 25 to 45 shillings per ton more than ordinary rails, owing to their greater durability. In one case, with 0.75 carbon, 0.03 phosphorus, 0.594 manganese and 0.069 sulphur, the breaking strain was 64 tons per square inch, elongation 21 per cent., contraction 28.5 per cent. In a second case, with 0.86 carbon, 0.018 phosphorus, 0.310 manganese and 0.077 sulphur, the figures were: Breaking, 37.3 tons; elongation, 36.5 per cent.; contraction, 69.2 per cent.

The William Tod Company, Youngstown, Ohio, has received an order from the Youngstown Sheet & Tube Company for a 34 and 64 x 48 in. horizontal vertical engine, rated at 2000 hp., intended for direct connection to a continuous double strand rod mill. Delivery is to be made in five months.

The Personal Factor in the Care and Inspection of Boilers and Machinery.*

BY J. W. RAUSH.

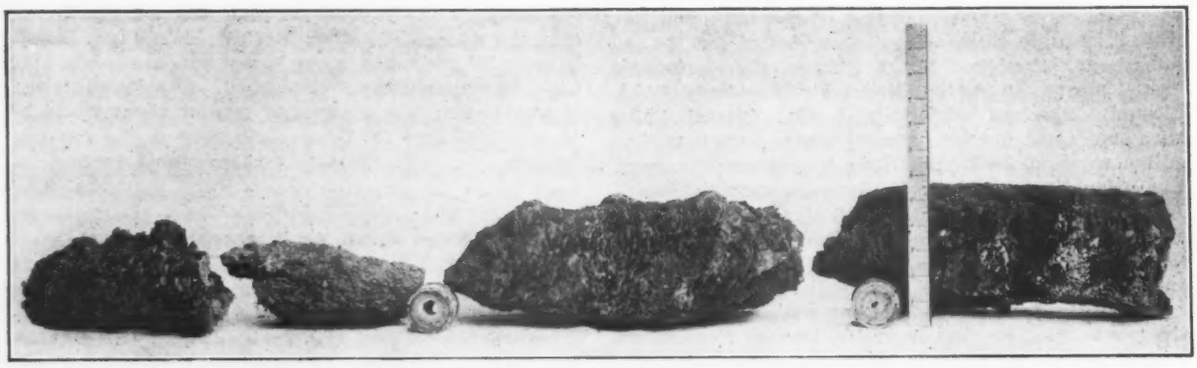
There is often a very material difference of opinion regarding things about a plant, especially if the question pertains to the necessity or practicability of guarding certain machinery, and it is this difference of opinion that brings into play the various personal factors, which often make the inspector's duty a most trying one. At some plants care is exercised to keep everything in first-class condition. The work is done in an orderly and systematic manner, and everything possible consistent with the nature of the business appears to be done for the welfare and safety of the employees. It is a pleasure to make an inspection at a plant of this kind, not because the inspection is less thorough, but the inspector knows that if he does find anything which is dangerous and liable to cause accident, such dangerous defects will be remedied if a practical way can be devised.

Unfortunately, however, there are many plants where the conditions are just the opposite. The inspector is looked upon with suspicion. The superintendent or manager at the plant may be more interested in turning out large quantities of goods at the least possible expense than in the safety of the employees. He may be aware of the fact that certain safeguards recommended by the inspector are absolutely necessary for safety, but is afraid that they will hamper the work, and instead of giving the improvements a fair trial complaint is made that the inspector is too critical and is insisting upon impracticable things. Thoroughly competent engineers are sometimes exceedingly jealous and sensitive, and are under the impression that their ability is questioned when an inspection is made of the machinery, boilers and other appurtenances of which they may be in charge. This is all wrong. Banks and trust companies are periodically examined by Government examiners, yet no one would question the ability of the officials of the banks and trust companies because of such examination.

It should be remembered in these times of rapid development that new appliances and devices are constantly being put on the market. The inspector visits different plants, and the very nature of his work is such that he picks up information and acquires a knowledge of matters pertaining to steam plants that could not be obtained in any other way. It is therefore reasonable to suppose that he can often suggest improvements even to the competent engineer, and he may also exchange ideas with the engineer to the mutual benefit of both. Then there is the engineer who does things knowing that they are dangerous but who is reckless and would rather take chances than encounter inconvenience. For example, inspectors often find the governor of an overloaded engine blocked. The engineer knows that the belt of an overloaded engine is under its most severe strain and is liable to break at any time. He also knows that if the belt does break the engine will race immediately, for the reason that with the governor blocked there is nothing to control the speed, and a disastrous flywheel explosion is inevitable; and this is only one of the many causes which, combined with a blocked governor, result in flywheel explosions. Strange to say, this is being done every day, and sometimes with the full knowledge of the management. This practice cannot be condemned too severely, for while the engineer may be willing to risk his life and the manager may be willing to run the chances of a heavy property loss, they certainly have no right to jeopardize the lives of the employees and other persons who may be about the plant.

Blocking the safety attachment of a passenger elevator is also done by some men, rather than take the trouble of adjusting the governor to the proper speed limit. Imagine an elevator full of passengers with the safety attachment purposely put out of commission because it was found a little troublesome to adjust it. The necessity of keeping safety attachments in proper working order cannot be too strongly emphasized. It is true that no mechanical device is absolutely reliable under all conditions, but thorough inspections and the proper care of safety attachments have prevented many accidents.

The responsible head of a large engineering plant cannot be expected and neither would he have the time to look after every detail, but as will be shown by the following experience, which is only one of many, a personal inspection now and then will often pay well. One of our inspectors visited an unusually large power plant to inspect boilers. Everything was apparently in the very best condition. At this plant special men are detailed to look after the repairs and the cleaning out of the boilers. The chief engineer pointed to one of the boilers, saying, "You may start on that one, but I hardly think it necessary to get inside as I have just received a report from the man in charge, who reports everything in first-class condition," and on holding a light inside of the manhole the boiler did look to be in excellent condition. However, the inspector wanted to see, and it is well that he did. He first got into the manhole above the tubes. The tubes were found to be fairly clean, but a solid mass of scale was found on the back head between the tubes and the shell. This scale extended down to the lower row of tubes, the water space being solid with scale for a distance of 1 ft. from the back head; also both sides were practically the same. In breaking out the scale we succeeded in getting a piece 12 in. long, 3 in. thick and 6 in. wide. An external examination showed that the shell plates at the points where the scale was found were very badly bulged and burnt. The rivets and the edge of the lap of the head seam were nearly gone. In order to put the boiler in safe condition extensive repairs were necessary.



Specimens of Scale Found by Boiler Inspectors of the Maryland Casualty Company.

Recognizing the importance of the proper care and management of steam boilers and the necessity of certain definite action in case of an emergency, we have prepared rules and instructions, printed on cardboard 8½ x 12 in., which are usually posted in boiler rooms by our inspectors so as to be constantly before the fireman. Careful attention to these rules will go a long way toward prolonging the life of boilers and preventing accidents.

The above cases bring out a few of the conditions met with by the inspector, but how about the inspector himself? Is he always courteous, and is he always clear and concise in his recommendations? Then, too, inspectors do not always agree, and in a controversy it is not always

* A paper by the superintendent of the inspection division of the Maryland Casualty Company, Baltimore, read at the convention of the International Association of Factory Inspectors, Toronto, June 23-26, 1908.

the fault of the management at the factory. The inspector with the requisite amount of tact and diplomacy can say things the right way. He will succeed in having improvements made where the other man will make an utter failure. If there is anything that makes a manager or superintendent indignant it is to have an inspector criticise or find fault with certain dangerous conditions without being able to show in a clear, concise and practical way how the danger can be overcome. Owners and managers do not like to have matters pertaining to their plants discussed by outside persons, especially if dangerous conditions are alluded to. If, then, the inspector finds anything about a plant which is dangerous he should confine his remarks to the proper person or persons and submit his report according to the instructions of his chief. It may at times be advisable, in order to emphasize the necessity of certain safeguards, to refer to other plants, and if the inspector will use discretion there can be no harm in this. On the contrary, it will go a long way toward convincing the management that certain safeguards are necessary if he can show from actual experience that accidents have occurred due to the lack of them.

What we need is a better understanding between the management at the plant and the inspectors. Let the owners know that inspections are not made with a view of criticising or finding fault, but that we want to help them. We are all working for one common good, and in order to obtain the best results we must co-operate with each other.

Ore Shipments Half Last Year's.

Resuming Operations at a Slow Rate.

DULUTH, MINN., July 4, 1908.—Iron ore shipments from the old ranges are now running about 50 per cent. of last year, and from the Mesaba a little more than that. Up to date the total shipments have been much less than 50 per cent. of last year, because of the elimination of April as a shipping month. The vessels of the Steel Corporation are all busy, and some of the independents have most of their ships active. Others are still idle.

Lake Superior presents a very different appearance from that of a year ago, and the season as it is usually figured, is almost half over. Mines that customarily ship a large tonnage are just now wheeling into line for the year; the Biwabik, for instance, which has a record of over 1,000,000 tons, sent out its first ore this week. Others, that have been idle to date, are beginning shipments in a slow and indolent manner. On the Marquette Range shipments are gradually increasing, and a fair tonnage is going out. Three or four steam shovels are working in stock piles at Ishpeming. The Empire mine, Cascade District, has started shipments and is sending forward about 700 tons a day. Around Crystal Falls the situation is much improved; stock piles are well out of the way, but pocket shipments are yet small. There are many idle men, though the forces at work are increased about 100 men per week just now. In the Iron Mountain District the Oliver Company has three shovels in stock piles, while the daily product is going to docks regularly. In the Norway Vulcan District all the mines usually busy are shipping, except the Saginaw, which will resume daily deliveries to the Sault furnaces at once. The Milwaukee Railroad has been hauling no ore from that district so far, but expects to begin in a few days. The fear of labor troubles on vessels is passing away, and it looks as though nowhere in the Lake Superior ore trade would there be any difficulties with labor this year.

New Work.

The Rogers-Brown Ore Company, operating in the Cuyuna District, has just shown its faith in that region, in spite of the large expense under which it has been in sinking to ore there, by taking a large additional acreage of lands on the trend of the formation, to the west. No explorations have been done here, but the magnetic attraction carries through that section, and the company will conduct extensive explorations soon. The difficulty with its shaft sinking near Rabbit Lake continues.

The work of turning the channel of the Sturgeon River at the Loretto mine has been delayed, and it will be some weeks before the mine can be reopened. Much more rock than was looked for has been encountered in the excavation of the channel. As soon as possible the work of unwatering the mine will begin, and it is expected that the property can be re-entered by miners about August 1. A large new Sullivan compressor has just been installed at the Maas mine, to supply air for this and the Negaunee mines. Its capacity is for 4000 ft. of air per minute.

Syracuse mine, of Pickands, Mather & Co., Mesaba Range, is now idle and full of water. This has been an exceptionally difficult proposition, and it is by no means certain that it will be opened for a long time.

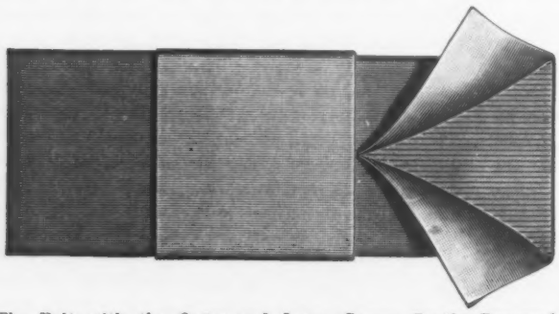
The Oliver Iron Mining Company has begun operations at Coleraine in the construction of five units of the permanent washing works for Canisteo mine ores. Each of these units will be of double the size of the experimental plant now at work and which has been treating ore at the rate of four cars per hour. The new plant should easily handle 1000 tons per 10 hr. per unit. This should make about 2500 tons of concentrates, aside from such ores as can be shipped in natural condition. It will be 1910 before the plant will be doing much business, and by that time a second block of five units may be under construction. The intention is to bring shipments from Coleraine to a very large tonnage. With this idea in mind the company has commenced preliminary work in stripping the one-half of section 16, 56-23, where it has a deposit, under the Great Northern lease, of about 25,000,000 tons. This is a State tract, and the Great Northern must pay the State school funds, 25 cents, out of its own royalty. The mine will be opened for a very large tonnage and is to be called the Hill. Close to it the Oliver Company also owns a large deposit in sections 17 and 18, and other parties own explored mines both east and west of the Hill. The town of Marble is to be established there, and will become a subordinate center for the Coleraine District. It lies some six miles northeast of Coleraine, four miles from Taconite, where are the Holman and Diamond mines of the Oliver Company, while the same company's Arcturus is half way between Marble and Taconite, making a tremendous tonnage in a short distance.

Work has been commenced in cutting a deep and long approach from surface to the Monroe-Tener pit, in section 28, 58-20, in order to open that property for steam shovel operations. It has been a milling pit, and the largest example of its class to be found. The change to steam shovel is exceedingly significant of the trend of operations on the Mesaba to-day. D. E. W.

An Oregon Hydro-Electric Enterprise.—The Wasco County Electric & Water Power Company, Condon, Ore., has been organized for the purpose of constructing a system of electric railroads, tapping the region embraced in the territory of the Deschutes and John Day rivers from Condon south to Bend. The country included in this district embraces a large area of fertile agricultural lands, sheep and cattle raising regions and rich mineral deposits which hitherto have been without transportation facilities. The company has authorized a $15,000,000 bond issue, of which series A and B, amounting to $6,225,000, will be offered in the Eastern security markets within the next 60 days. Construction work connected with this enterprise will be handled by the Portland Construction Company, recently organized and incorporated with a capital stock of $500,000. Power for the operation of the system will be generated from two hydro-electric plants to be built on the Deschutes and John Day rivers. Plans for this work contemplate the construction of large dams on these rivers; the one on the John Day River will be built to furnish 100 ft. head upon turbine wheels, which it is estimated will generate 20,000 hp.; the Deschutes River plant is so located that sufficient head can be secured to develop 60,000 hp. The incorporators of this enterprise are Geo. S. Carpenter, Mark W. Gill, W. H. Grindstaff, H. I. Keeney, R. L. Donald, H. J. Martin, O. B. Hathaway, E. P. Schow, C. D. Charles, F. S. Munn, F. T. Hurlburt, C. W. Lord, R. L. Hunter and D. R. Parker.

Chemi Linen Center Belting.

As the equivalent in strength of a double leather belt at a cost of within that of the best single leather belt, the U. S. Chemical Rubber Company, 109 South Jefferson street, Chicago, Ill., offers the new Chemi linen center belting. The illustrations herewith show its construction. Through the center run parallel linen cords, which provide the tensile strength of the belt, and around these are placed two or three canvas covers, which take all of the wear but little or none of the strain. The linen center cords have a breaking strain of over 125 lb. each and there are eighteen to each inch width of the belt. The plies and center of the belt are united into a continuous but flexible structure by the Elastic belting cement made by the company. This cement not only joins the linen cords and canvas but also forms a film between each ply, which contributes to extra flexibility and life of the belt. The canvas is a closely woven fabric declared to be superior to the ordinary belting duck in its wearing qualities and produces an excellent friction surface.



The Belt with the Outer and Inner Covers Partly Removed, Exposing the Center Cords.

Transverse Section of Five-Ply Belt.

Transverse Section of Five-Ply Belt with Leather Facing.

The Chemi Linen Center Belting Made by the U. S. Chemical Rubber Company, Chicago.

The Chemi belting is especially suitable for transmitting power in connection with dynamos, motors, fans, blowers and as main and lead belts, or in any place where double leather belting is ordinarily used. When an extra heavy belt is required, as in connection with elevators, punch presses, hammers and air compressors, where there is an uneven and jarring pull, which causes considerable friction, the belt is faced with leather which makes a soft contact with the pulley and increases the belt's gripping power. The belts are finally treated with a sizing of a special oil, which maintains the softness and pliability and materially avoids slipping. The treatment makes the belt oil-proof, but the belt is not claimed to be waterproof, hence is not suitable for outdoor work. The main fact emphasized concerning the belt is that it is substantially stretchless. In an average length of belt one take-up of ½ in. is sufficient; this is usually made three or four days after the belt is applied, but if belt clamps or stretchers are used to put the belt on tight in the beginning all of the stretch can be taken out at once.

Chemi belts are claimed to transmit more power for a given weight and width than any other belts. They can be run crossed and on pulleys over 6 in. diameter at a speed up to 3500 rev. per min. They can be used as shifting belts if the fingers on the shifters are rounded so as not to cut the edge of the belt. As has been said, the belts are not adapted to use where they will come in contact with water or dampness; they are not recommended either for high speed on small pulleys, and they should not be run at a quarter turn, because they are stretchless.

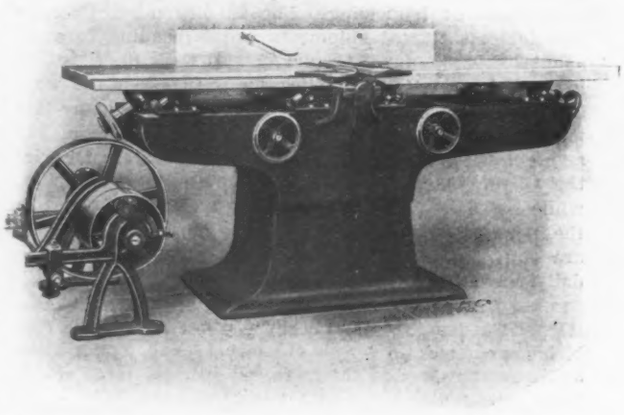
To join the ends of Chemi belts the different plies at the ends can be stepped and lapped for a distance of from 12 to 15 in., the linen cords being separately tied together and the whole made practically an endless belt by cementing with the Elastic cement. Like other belts, however, they can be joined by a soft wire, rawhide or machine lacing. The holes for the lacing should not be made with the usual belt punch, as this cuts out some of the material, but an awl or nail should be used to spread the fibres apart and then the tensile strength at the joint will be greater. The company particularly recommends its Simplex belt lacing, with which a hinged joint may be made, preferably connected with a rawhide pin for the key. With it there is a very small amount of the lacing in contact with the pulley, so that there is little jar or loss of power at the joint. The lacing has six prongs to the inch, and these are driven through the belt in staggered relation, so that there is less tendency for the belt to break at the line of the punctures. The prongs spread the fabric instead of cutting it and a hammer is the only tool necessary to apply the lacing.

Another product of the company which is useful in connection with the Chemi belting is the Chemi pulley dressing. Most pulley dressings contain rosin, which makes the belt clutch the pulley too closely, causing the laps or plies to pull apart. The dressing when poured on the belt is transmitted to the pulley faces, forming a rubber-like coating on them which keeps the surface of the belt smooth and clean and prevents the belt from slipping without running it excessively tight.

Silver's New Jointers.

From entirely new designs and patterns the Silver Mfg. Company, Salem, Ohio, is building a line of woodworking jointers containing a number of special features. They are built in five sizes, with 8, 12, 16, 20 and 24 in. knives. The frames are in column form, with a large base. The cylinder heads are milled from solid forged steel and are T slotted on two sides for molding, rabbetting and other cutters. For the protection of the operator a movable guard covers the unused portion during working. On the 8-in. machine the driving pulley is 3½ in. in diameter for a 2½-in. belt, and on the larger sizes it is 4 in. in diameter for a 4-in. belt.

A very important part in a jointer are the bearings. In these machines they are made of good length and diameter, lined with copper hardened babbitt, and large oil chambers and self-closing oilers are provided. The bearing on the pulley side is 7 in. long and that on the operating side 5 in.; both are capped to prevent escape of oil.



An Example of the New Jointers Built by the Silver Mfg. Company, Salem, Ohio.

A unique feature in the jointers is the arrangement for making the vertical and longitudinal adjustments of the table. These are independent of one another and can be regulated, while the machine is still or running, to suit the thickness of the cut or to close the gap over the head. The table is mounted on steel pin inclines, which

take the place of the usual slides or grooves. They are claimed to be absolutely uniform, and have split bearings clamped with set screws to take up wear and keep the table firm. The vertical movement of the table on these pins is controlled by a hand wheel at each end, and an auxiliary hand wheel rigidly locks the table at any level. Without disturbing this level, the tables and sliding frame can be rapidly withdrawn from the knives to make the latter accessible for sharpening, adjusting or for substituting special cutters. This movement of the table is governed by a hand wheel on the working side of the machine, through a rack and pinion. The same hand wheel by a clutch device locks the whole. The sliding frame is dovetailed into the main frame and has adjustable gibs on the sides for taking up wear.

The tables are of iron, planed smooth, and are about 32½ in. from the floor. The rear table is constructed for rabbetting. On the 8-in. machine the front table is 36 in. long and the rear table 30 in.; on all the larger jointers the front table is 42 in. long and the rear 36 in. The fence can be tilted to any angle from 90 to 45 degrees, and can be moved to cut the full length of the knives. A pressure spring is provided for holding the work to the table.

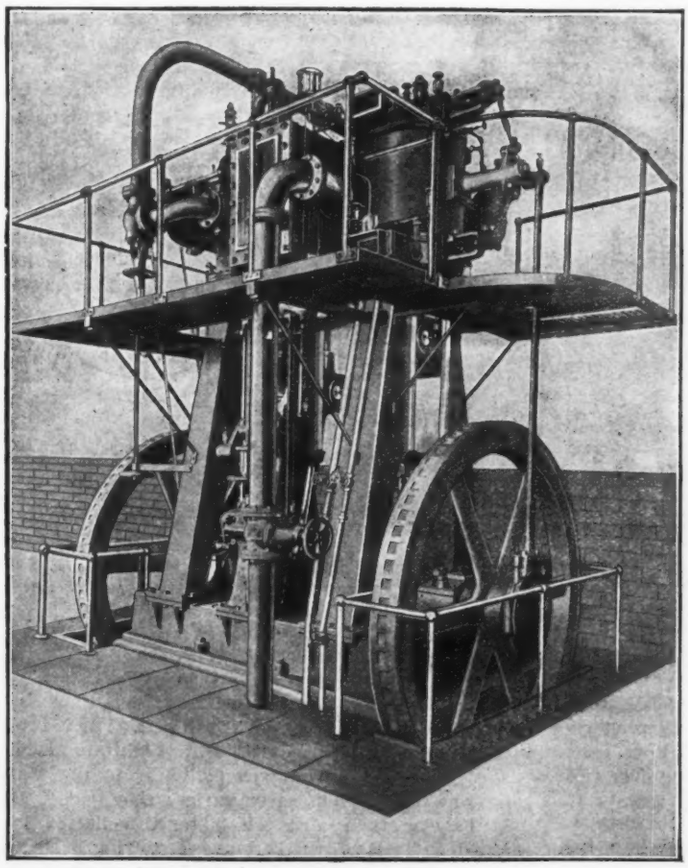
The 8-in. jointer occupies a floor space of 22 x 68 in. and weighs 900 lb. The corresponding figures for the 12, 16, 20 and 24 in. machines are, respectively: 30 x 80 in., 1390 lb.; 34 x 80 in., 1520 lb.; 38 x 80 in., 1615 lb., and 42 x 80 in., 1750 lb. The jointers are furnished with countershafts having 10 x 5 in. tight and loose pulleys intended to run at 800 rev. per min., which gives the required speed to the machines of about 4000 rev. per min.

The June issue of *Ideal Power*, published monthly by the Chicago Pneumatic Tool Company, Fisher Building, Chicago, Ill., contains as its leading article "The Gas Process of Case Hardening," reprinted from *The Iron Age* of May 28, 1908. There are also descriptions of the Merrill-Shoffner pneumatic tool holder, an article from the *Railway Age* on cutting metals with the oxy-hydrogen blowpipe, one from the *Industrial World* on the welding of brass or copper to steel, and a description of the Burke induction motors.

The Rowland Vertical Two-Stage Air Compressor.

Where floor space is limited it is often desirable to install machines of a vertical type. The accompanying illustration shows an air compressor of such a type which was built by the Rowland Machine Company, New Haven, Conn., for the Continental Iron Works, Brooklyn, N. Y. In its essential features it is not unlike other machines of the same capacity. The style of valves, both intake and discharge, their arrangement, the method of water jacketing, the intercooler and the important points of the machine differ little from those of other standard makes, but it occupies an unusually small amount of floor space compared to the horizontal machines of equal capacity; the floor space is only 11½ x 8 ft. and the hight is 14½ ft. The machine is also considered by the builder to be creditable for its compactness of design and symmetrical arrangement of its various parts. That it weighs 42,000 lb. gives some idea of its solidity.

The purchaser specified a compressor delivering approximately 600 cu. ft. of free air per minute at a pressure of up to 100 lb. per square inch. The floor space available in the engine room would not admit a horizontal machine of this capacity, so this vertical machine was built to order. It is a steam driven compressor with compound air cylinders; the steam cylinder is 20 in. in diameter and is mounted between the air cylinders, which are 20 and 13 in. in diameter, respectively. The stroke of all three cylinders is 24 in. and the speed 70 rev. per min. The cylinders are mounted on a common bed plate upon legs or frames of rectangular cross section.



A Vertical Two-Stage Air Compressor Built by the Rowland Machine Company, New Haven, Conn., for the Continental Iron Works, Brooklyn, N. Y.

The steam cylinder is of the slide valve class, fitted with independent cut-off valves which can be adjusted to suit various loads. The ports are large, and both the cylinder and steam chest are jacketed and surrounded with asbestos lagging to reduce condensation. The speed is regulated by a Judson governor, which is controlled by an air pressure regulating attachment.

The inlet valves of the low pressure air cylinder are similar to the steam valves of a Corliss engine, and are moved by an eccentric attached to the outer end of the crank shaft. The high pressure cylinder has poppet inlet valves, and the discharge valves of both cylinders are also poppet valves. These valves work in cages which can readily be taken out for examining or repairing, without disturbing other parts of the machine. Both air cylinders are surrounded with water jackets which extend to both the top and bottom heads. In addition to this an intercooler, consisting of a cast iron shell filled with brass tubes, connects the low with the high pressure cylinder.

The crank shaft is of open hearth steel. The main bearings, four in number, are 7 in. in diameter by 14 in. long. The two flywheels, which overhang at each end, are large and heavy enough to give steadiness of motion. An elevated platform around the machine just below the cylinders gives access to the valves, rocker arm, governor, &c.

This first machine of its type has proved so successful that the purchaser has recently been furnished with a second compressor from the same design and patterns. So far this is the only size that has been built, but the builder is prepared to undertake the construction of any other size along the same general lines.

The Youngstown Sheet & Tube Company has moved its general offices from the Federal Building to the new Stambaugh Building, Central square, Youngstown, Ohio, where it occupies the entire eighth floor. Additional space was needed to take care of the company's growing business.

The Morse Rarefied Dust Collector.

In the Morse Rarefied dust collector, its manufacturer, the Knickerbocker Company, Jackson, Mich., believes it has overcome the disadvantages of other means of separating finely pulverized material from a conveying air current. It uses no cloth or other screens, hence does not require frequent attention to remove the material that clogs up the meshes. While it is a centrifugal collector, it is radically different from the usual devices in that the air is exhausted from it instead of being blown through it, hence a partial vacuum or rarefied condition of the air is produced within the collector, which explains its name. An important gain from this arrangement is that the particles carried with the air are thrown against the walls of the collector only by their own momentum and not augmented by pressure of air behind them; their abrading action on the surfaces they impinge upon is correspondingly decreased, so that these parts need not be frequently renewed. More important still is that the air is purified before it passes through the fan instead of after, and wear of the fan blades and housing is consequently avoided. The collector is particularly valuable therefore for use in connection with emery wheels, tumbling mills, sand blasts, &c., and in handling all products of metallic or flinty character. Morse collectors have been in practical use under such conditions for over two years without, it is claimed, requiring any repairs to either fans or collectors.

The dust spout is connected to the collector at the tangential inlet A as shown in Figs. 1 and 2, while the fan inlet is connected with an exhaust pipe opening in the collector at J. The fan establishes an air current through the outlet J, creates a partial vacuum or rarefied air condition in the areas B, C and D, and draws the material laden air into the casing at the inlet A. The tangential entry of the material laden air establishes a whirl as it passes through the structure and the centrifugal action causes the heavier material particles, having the greatest specific gravity, to be projected toward the inner dividing casing E, where they pass through the skimmers F into the rarefied chamber C. A lighter grade of dust travels along the walls to chamber B, and the very light dust, which, by reason of its low specific gravity, has not sufficient momentum to immediately overcome the draft of the air current, passes toward the center with the inwardly flowing air and escapes to the rarefied or vacuum chamber D, which is open to the air whirl. The purified air passes out of the collector through the axial exhaust pipe and thence through the fan. As the material accumulates in the chambers B, C and D, it will fall to the bottom thereof and discharge of its own weight through the automatic traps G, H and I.

The inner casing E of the collector is of heavy sheet steel and interchangeable, so that it may be readily renewed at any time at small expense, although, due to the axial escape of the air and the vacuum principle of the collector, the wear is not considerable. The air drawn into the collector at the periphery of the casing instantly escapes at the center outlet J and exerts no pressure against the casing E, as the flow of air is from the dividing wall, as may be seen in Fig. 3. The heavier dust is carried on only by its own momentum to the inner casing E and is immediately skimmed out into the rarefied areas surrounding the inner walls. The greatest suction is at the center of the whirl X, which is the axis of the casing, and the outer areas being rarefied act as cushions for receiving the centrifugally expelled dust, reducing the friction on the casing.

The Rarefied collectors are built in both vertical and horizontal patterns. The latter type is for use where a separation of the product collected is necessary. It will separate material collected according to the specific gravity and discharge it in three grades through the traps G, H and I, Fig. 2. The vertical type discharges all the dust in one stream through the trap G, Fig. 1. Up to and including No. 15, the horizontal collector is constructed in one body as shown in Fig. 2. For No. 16 and larger it is built in three sections, to facilitate placement.

Fig. 1.—The Vertical Type.

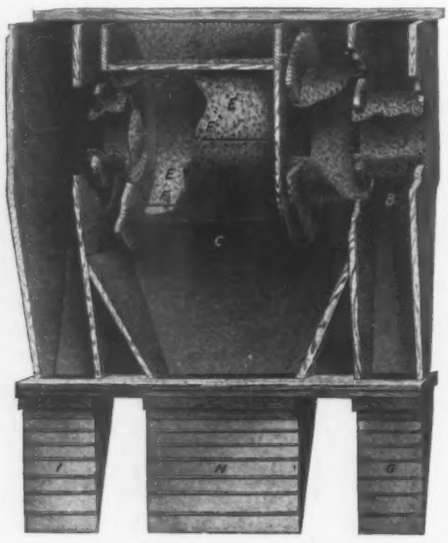


Fig. 2.—The Horizontal Type.

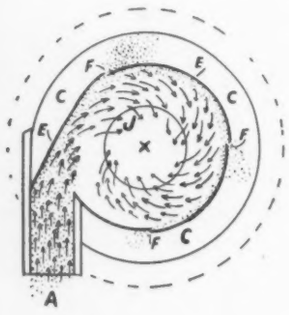


Fig. 3.—Diagram of the Lateral Section Common to Both Types.

The Morse Rarefied Dust Collector Built by the Knickerbocker Company, Jackson, Mich.

Summing the advantages claimed for the Rarefied collectors—the suction never varies; they collect all the dust heavier than air; the material collected is discharged automatically; there are no moving parts; there is no cutting out of the fan; the inner separating walls are interchangeable; there is no undue wear on the collector parts, and the cost of repairs is very slight.

The Youngstown Car Mfg. Company, Youngstown, Ohio, has booked an export order for 20 flat wooden standard gauge 80,000 lb. capacity cars for shipment to the Hawaiian Islands. It recently shipped 10 12-ton 36-in. gauge steel ingot cars to the La Belle Iron Works, Steubenville, Ohio. During the business depression the company had sufficient contracts for cars to enable it to run its plant to nearly full capacity, and at present it is running to about 75 per cent., with orders enough on hand to carry it over the next two months.

Germany's imports of iron ore in 1907 included 5,603,505 tons from Sweden and 2,149,299 tons from Spain. The total from all countries was 8,476,076 tons. The imports from Sweden have increased rapidly, averaging about 1,550,000 tons in 1903, 1904 and 1905. In 1906 they were 2,300,000 tons, and in 1907 increased to nearly two and a half times that amount.

Shipbuilding in the Fiscal Year 1908.

WASHINGTON, D. C., July 7, 1908.—The preliminary annual report of Commissioner of Navigation Chamberlain shows that the shipbuilding industry in the fiscal year ended June 30, 1908, broke all records. The aggregate tonnage of vessels actually completed and put into service amounted to more than 600,000 tons, more than two-thirds of which was of steel construction. Considerably more than one-half the total tonnage was constructed in shipyards on the Great Lakes.

That this record breaking output is to be followed by a heavy slump is already foreshadowed in unofficial advices received by the Bureau of Navigation, and it is predicted that the construction for the fiscal year, which began July 1, will hardly exceed one-half the output for the year just closed.

Returns covering the fiscal year 1908 show that 1506 vessels of 588,627 gross tons, were built and officially numbered. To this total there should be added, however, a considerable number of vessels, which were officially numbered in May and June, 1907, but which, because of shipyard strikes, were not actually completed until after July 1 of that year. The amount of this additional tonnage cannot be accurately stated, but there is no doubt it carries the total well above 600,000 tons. The largest previous annual output was in the year 1855, when 2024 vessels, of 583,450 tons, were built. The steel vessels built in the fiscal year just ended numbered 142, of 417,167 gross tons, compared with 131, of 366,517 gross tons, built in the year 1907. The record for steel construction was broken in both these years.

The following table presents a comparison of the steel construction of the last two fiscal years by navigation districts:

Steel Vessels Built and Officially Numbered.

	1908.		1907.	
District.	No.	Gross tons.	No.	Gross tons.
Atlantic and Gulf	53	87,374	80	117,311
Pacific	11	24,850	1	8,579
Great Lakes	75	304,379	47	238,713
Western rivers	3	564	3	1,914
Totals	142	417,167	131	366,517

Next to the important gain in steel construction in recent years, the most significant tendency has been the increased proportion of the total output credited to Great Lakes shipyards. A few years ago these yards produced a relatively small proportion of the total, but in the fiscal year 1907 they turned out 57 per cent. of the construction, and in 1908 they produced 61.5 per cent.

Of the 142 steel vessels built in 1908, 85 exceeded 1000 gross tons each. Of these 55 were built on the Great Lakes, the largest being the William M. Mills of 7962 tons, and 30 were built on the seaboard, the largest being the Columbian of 8579 tons, built at San Francisco for trade to Hawaii. Four ocean sailing vessels exceeding 1000 tons each, were built during the year, the largest being the Edward J. Lawrence, of 3350 gross tons. The tonnage built in 1908 was entirely for domestic transportation, no vessels exclusively for foreign trade having been launched in the United States.

Supplementing these interesting figures, returns are being received by the Bureau of Navigation from the principal shipyards showing vessels in the course of construction and contracts on hand. From these data it appears that all the shipyards, and notably those at tidewater, are rapidly cleaning up their orders, and that very few contracts have been secured since last November. It is from these advices that the bureau officials draw the conclusion that the output for the present fiscal year will hardly exceed one-half the production of the year 1908. The heavy falling off in orders for construction for the coastwise trade, combined with the absolute cessation of shipbuilding for the foreign trade, will be urged upon the attention of Congress next winter in connection with the pending Ship Subsidy bill, which has passed the Senate, but which has not yet been acted upon by the House. In the closing days of the recent session the Subsidy bill was stricken off the Post Office Appropriation bill, to which it had been added as an amendment. W. L. C.

Average Analyses of Lake Ores in 1907.

The Lake Superior Iron Ore Association, Cleveland, Ohio, W. B. Treat, secretary, has issued its annual booklet, giving average cargo analyses of Lake Superior ores for the season of 1907. In a few cases the expected analysis for 1908 is given instead of the record for last year. The names of 38 ores appear in the present list which were not in that published last year, and 16 ores listed last year are absent from the new list. In some cases there may have been changes of ore names and in others the ore is not now on the market, either from exhaustion or temporary inactivity of the mine. Of the ores appearing for the first time 14 are from the Mesaba range.

In referring to the association's ore book of last year mention was made in these columns of the declining iron content of a number of ores. This is again noticeable in the list just published. In some cases the iron content as shown by the average analyses for 1907 represents an increase over the preceding year, but the number of these instances is small in comparison with those representing the general trend. The ores which showed one point less in iron in 1907 than in 1906 are numerous. Some declined two points and the average is probably considerably over one point, though in order to get an accurate idea of what is taking place it would be necessary to know how much of each ore is shipped. Below are given the names of representative ores, with a comparison of the iron contents for 1907 and 1906:

	1907. Per ct. iron.	1906. Per ct. iron.		1907. Per ct. iron.	1906. Per ct. iron.
Ashland	58.70	60.00	Lake Bessemer	60.80	62.50
Atlantic	62.097	63.01	Lillie	58.53	59.46
Aurora	62.18	61.30	Negaunee Bes'm'r	58.80	60.00
Brotherton	56.72	58.40	Princeton	57.70	58.60
Cary Bessemer	54.57	55.90	Republic, crushed	61.55	62.90
Cary Empire	53.85	56.01	Salisbury	58.60	59.50
Iron Belt	55.50	56.00	Chapin	58.98	58.18
Montreal	63.27	62.69	Biwabik	61.54	62.23
Newport	52.58	53.50	Franklin	56.65	60.46
Sunday Lake	58.12	59.25	Hawkins	55.40	57.59
Tilden	62.73	63.45	Higgins	58.37	59.85
Angeline Hemat'e	64.36	65.14	La Belle	58.73	56.05
Cliffs Shaft, crushed	59.40	60.80	La Rue	55.44	60.28
Cliffs Shaft, lump	60.00	61.50	Laura	57.95	59.20
Imperial	51.70	54.50	Malta	56.97	60.46
Lake	59.00	59.50	Union	61.26	59.99
			Victoria	60.22	62.33
			Helen	58.20	59.60

The above percentages are for ore dried at 212 degrees F. While many ores mined by steel companies for their own use are not included in the analysis book, enough of such ores are given to show that the tendency toward lower iron contents is general and applies equally to Old Range and Mesaba ores.

A Consolidation of British Structural Firms.

The rumors concerning a steel consolidation which have been cabled from London in recent weeks have been too vague to merit attention, and the surprise is that they should have been reiterated so frequently. Perhaps as solid a foundation as has existed for these reports is furnished by the negotiations for an association of "makers of bridge and constructional iron and steel work" referred to by the London *Economist*. It is said that the project has met with approval from a number of British structural firms, including Braithwaite & Kirk, West Bromwich; Cleveland Bridge & Engineering Company, Darlington; P. and W. MacLellan, Ltd., Glasgow; Joseph Westwood & Co., London; the Widnes Foundry Company; Head, Wrightson & Co., Stockton-on-Tees, and John Butler & Co., Ltd., Leeds. Several strong concerns have declined to join, but an effort is being made to overcome their objections. The report is that negotiations have been in progress between representatives of the proposed consolidation and a committee of the Northeast Coast steel manufacturers, the Midland producers of steel angles and several Scotch steel companies, looking to an agreement involving preferential prices.

THE IRON AGE

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The Responsibility for Steel in Construction.

The consumer's demands upon the manufacturer of steel grow more exacting. The rail problem may come first to mind in this connection, since there has been such a flood of published matter on the added stringency of the requirements of the railroads. But the point we would emphasize is not so much that issues have been raised between producer and buyer over the severity of specifications for rail or other steels, as that the buyer has been disposed, apparently, to throw over upon the manufacturer of steel the burden the buyer's customers in turn have been putting upon him. It is this factor in the rail controversy that offsets much that was said last year, directly or by innuendo, as to the lack of co-operation by the steel companies in the movement for higher quality in rail steel. These companies could not be expected to join with heartiness in an effort to lay all track failures at their door. Dr. Charles B. Dudley, in his presidential address before the American Society for Testing Materials at Atlantic City recently, properly characterized the disposition shown by some railroad engineers to shift the responsibility of inferior track maintenance upon the shoulders of the rail manufacturer. The aim of such engineers, as he put it, is "to have a rail of minimum weight per yard and yet so good that even though the track might not always in every detail be kept up to standard there would still be no failures." The speaker, with the candor and fairness that marked all his discussion of the question, then weighed the factors in the track maintenance problem and raised the question whether heavier rails would not pay for the increased weights by the resulting economy in track maintenance. He also asked whether heavier rails of more expensive steel would not be even more economical—that is, yield such a saving in track maintenance as would more than pay for both the increased weights and the higher grade steel.

So far as the experience of the Pennsylvania Railroad goes, the answer given by E. F. Kenney, formerly engineer of tests of that system, in a paper read at the same meeting, is positive. Mr. Kenney says that the adoption of much heavier rails than those used to-day would be distinctly an economy because of the reduction in the cost of maintaining the track. Since the rail cost on American roads averages only 7 per cent. of the total maintenance charges, it would seem that quite too much stress has been put by the railroads on the pecuniary side of the rail question. On the testimony cited above some of the railroad engineers have been straining at a gnat and swallowing a camel in quibbling over paying the rail makers for more steel per yard of track and for the better steel that would result from the more expensive mill practice they insist upon. The rail question is to a far greater extent than the multiplication of words over it has indicated, a commercial question. It is encouraging to see in this later discussion more of a disposition to grant that the rail mill should not be saddled with the problems, certainly not the neglected problems, of the maintenance of way department.

At the meeting of the American Society for Testing Materials referred to above there was also presented a report from the Committee on Uniform Specifications for Boilers, which further illustrated the readiness of the consumer of steel to pass his troubles on to the steel mill. The manufacturers of boilers have had up with the Board of Boiler Rules in Massachusetts some of the provisions of the new regulations in that State which they have found it difficult to comply with under existing boiler shop practice. The Massachusetts board is quite disposed to insist upon the original requirements, and the boiler makers are facing the probability that they will be adopted in other States. Some of the regulations bearing on boiler construction would not be necessary, the boiler manufacturers argue, if greater strength and uniformity could be guaranteed for boiler plates and tubes. They recommended, therefore, that in the specifications for boiler plates the phosphorus and sulphur limits be lowered, so that 0.03 per cent. of both elements shall be the maximum for much of the steel entering into boiler construction and that 0.04 per cent. in phosphorus shall be the maximum for any boiler steel.

We are not citing this last demand of the boiler manufacturers upon the manufacturers of steel as being entirely parallel with that of the railroads, but it illustrates the manifest tendency. In every form of service in construction steel is being called on to carry greater loads, sustain higher pressures, resist stronger attacks by corroding agents. From all directions consumers are crowding upon the steel manufacturer these increased demands. It is certain that they must be met by new methods, by greater care in all the processes of manufacture, by the application of the discoveries constantly being made as to the effects of heat treatment and the alloying elements. We do not find that steel manufacturers have ever been satisfied to stop improving their product. Much of the progress they have already made has been unrecognized because service has increased in severity as product has gained in quality, and in many cases faster. The question may properly be raised, however, whether the practice of the consumers of steel has improved as much as has that of the steel mills. It is only fair to expect, moreover, that each interest in its own field should bestow some worthy effort on these problems of steel in construction, and not merely make them the ground for fresh exactions from the mills whenever specifications come up for amendment.

Some Precedent for Earlier Working Hours.

The movement in the British Parliament to set the clock ahead an hour or so in the spring, so that people will get greater benefit from the long daylight, is generally regarded in this country as impracticable. Yet it recalls that there is a sort of precedent for the suggested custom in American industry. In some trades in New England the factories have started earlier in the morning in the spring months and closed correspondingly early in the afternoon, so that employees might have additional daylight in which to take recreation. While the practice

has been by no means common, yet it formerly existed, and there may yet be instances of it.

The English idea is to set the clocks of the country about an hour ahead in the early spring, so that while the morning work will start at the same time by the clock, it will really be an hour earlier. It would be 7 a.m. when it is now 6. Bed time would be correspondingly earlier. The people, however, would have more daylight in their waking hours. In general theory the idea is not an impossible one. Each spring the clocks would be set ahead, to be put back again in the autumn.

It is stated that in those American works which changed their daily schedules to start an hour or half an hour earlier in the morning, the trouble was experienced that employees did not change their hours of retiring, and consequently got an hour's less sleep. This usually meant a loss in production, because a sleepy workman loses some of his efficiency. Another manner of changing schedules in the spring has been to run 11 hours a day for five days, starting at 6.30 a.m. and allowing but half an hour at noon, thus making up for a Saturday half holiday without loss of time. This custom has been followed for years in certain textile mills employing English workmen, who use the whole Saturday holiday for their sports, making of it their summer vacations. In such cases the manufacturers state that there has been no loss in efficiency of labor.

Holding Back Improved Products.

A certain amount of disinclination is observed with some manufacturers of machinery and other shop equipment to bring out new tools at this time. From the buyers' point of view, this attitude toward them does not seem the most profitable under existing conditions. It will be remembered that when business was extraordinarily active the machinery builders were loath to introduce new types or designs into their lines because there was then no need of stimulating demand, and because they did not wish to complicate manufacturing in any way, the wise policy being considered one of concentration to the last degree upon regular products. Neither did they wish to spend time and energy on anything new. Every bit of industrial and business strength was required in taking care of a market so great that it passed the limits of producing capacity. The theory then expressed was that the time to bring out new products is when business is dull. This idea, however, is not being lived up to in many cases. The tendency is to wait for a rising market, for a period of increasing demand when buyers will be actually in the market.

Such delay is based on wrong surmises. A great many industrial concerns have been doing much planning during their rest from active business. Weaknesses of plants were thoroughly exposed while business was rushing, and it was difficult, frequently impossible, to remedy them at the time. Now plans have been made for such improvements as have not already been accomplished. Campaigns have been laid out for taking care in the most economical manner of the business which will come with a return of prosperous conditions. These facts have been demonstrated in various ways. The unusual number of inquiries for equipment, which have constituted a feature of the market, are founded upon the expectation of making improvements as soon as more funds shall become available or the business outlook better defined. Many manufacturers have been heard to express their intention of improving their equipment as soon as the time seems right to do so. Tools have been rearranged in the works, and other preparations made for the installation of new machinery. A very definite idea exists in almost every manufacturing plant as to what should be done to equalize production through the various departments and processes of manufacture, and to increase it.

It is not assumed that manufacturers as a whole are planning extensive changes at this time, nor that radical enlargements of plants are to be looked for. But, nevertheless, the improvements which are already on paper as necessary in order to meet another rush of business will total an amount of money which will be an important factor in the trade when they are carried through. The machinery and other salesmen who have kept in unusually close touch with their trade of late have found this to be the state of things everywhere. After such a period of stagnation as that through which we are passing a rapid recovery is to be expected. This may come at any time. No condition seriously unfavorable to improvement is now in sight, and the present would seem to afford the opportunity to bring to the attention of the trade all new products which would serve to improve a customer's lines or reduce his cost of manufacturing.

CORRESPONDENCE.

The Chemist in the Iron Trade.

To the Editor: The writer of this communication, in an article on "The Chemist in the Iron Trade" published in *The Iron Age* of July 2, makes a statement which, in justice to the many practical works managers and superintendents in the iron trade who do not know general chemistry, must be qualified somewhat. That statement is that the works manager should understand general chemistry (analytical chemistry, as we have shown, is no good at all to him to understand), and the qualification that must be made to it is—if he has no chemist in his employ. But, having a chemist, there is hardly any more reason that he should understand general chemistry than that he should understand stenography and typewriting with a stenographer on hand, although certainly more desirable.

In this connection, it is worth while to note the point that with a works supplied with a practical man as manager and an analytical chemist not only to make analyses of material and product, but also to supply the manager with the chemical metallurgical theory needed, every requirement is pretty well met, and it is really not so very apparent after all that the chemical engineer—that is, the manager who understands chemistry—is a burning necessity to the iron trade. The works chemist does not have to be bribed by the gift of superintendency into parting with his precious chemical knowledge. On the contrary, he is glad of a chance to air his knowledge, and precious little chance he gets at present, with his superior impressed with the prejudice that chemical theory is strictly the manager's business, into which he may not call another without suffering the imputation of not understanding his business. This is a false and foolish idea on the manager's part. As well might he feel obliged to do his own typewriting as do his own chemical theorizing.

A practical man as manager and an analytical chemist upon whose chemical knowledge the practical manager has no prejudice against drawing would seem to be a reasonably effective combination. But it is of course desirable in such an arrangement that the chemist be really and truly a chemist, and not an indefinite and more or less inefficient (compared, that is, with the same effort concentrated in a single line) compound of chemist, practical engineer and unconscious humbug. In other words, with a practical engineer as manager, working with an analytical chemist who supplies the chemical theory, it is a waste for the former to study up chemistry and for the latter to study up practical engineering.

So with a chemical engineer, on the contrary, as manager and an analytical chemist also employed in the

works, there would seem to be a plethora of chemical knowledge. But when this arrangement is preferred, then the writer must once again hark back to his old cry that the young chemical engineer should be started in the office and not in the laboratory. Why impose upon him a handicap (the handicap of many years spent in a foreign and unrelated occupation) that the members of no other profession have to submit to? A certain amount of handicap, it is true, the chemical engineer must put up with. He cannot, like the members of other professions, jump at once from college into the practice of his profession, but must first serve a humble, practical apprenticeship at the works. But this is the question, and it is an important one, should this humble apprenticeship be served in a position where he can learn the practical part of his profession or where he cannot? Should he be put in the office, or somewhere around the works, or should he be put in the laboratory, or on a farm, or in a dry goods store? The answer would seem to be obvious, and works that take on young chemical engineers should start them as officemen, and the college should give chemical engineers no training in analytical chemistry.

GEORGE AUCHY.

PHILADELPHIA, PA., July 6, 1908.

The Inventor and the Patent Office.

To the Editor: A discussion having arisen in various parts of the country regarding the status of the inventor with relation to the United States Patent Office, and expressive of the opinion that inventors of the country should form a national organization for the protection and advancement of their interests, permit us to state that just such an organization exists in the International Congress of Inventors, established in 1906, incorporated in 1907, and having members in several States of the Union, with branches formed or forming in Texas, Missouri, Illinois and California. This organization was established to benefit inventors as a class by seeking to secure legislation which shall insure to the inventor the services at the Patent Office which his application fees should provide and the protection for his invention which a government guaranty should give.

Largely through the efforts of the International Congress of Inventors the Federal Congress has this year provided for an increased force of examiners in the Patent Office and for an advance in the salaries of Patent Office employees, which will tend to retain in Government employ those who have become expert in the treatment of applications. A patent fund of $7,000,000 has been accumulated from the sums paid to the Government by inventors, and the Patent Office is the only self-sustaining Federal department. Surely the inventors of the country are entitled to the consideration which these facts warrant.

An important matter under consideration by the International Congress of Inventors is the establishment of a standard for a United States patent. The patent system purports to be a method of rewarding inventors and thereby stimulating the production of inventions of value to the public. But patentees and holders of patents find that a United States patent, in order to attain a definite standing, must be tried out in court. Yet a guaranty of protection issued by the Government ought to be something more than a license for a law suit. The International Congress of Inventors is giving this matter careful consideration, and it will seek such action by the Government as will make a patent conform to its purport. This is one of the many subjects now before this organization. Suggestions in the interest of inventors and all who hold patents are solicited by this organization.

RALPH T. OLCOTT,
Secretary International Congress of Inventors.
16 STATE STREET, ROCHESTER, N. Y., July 2, 1908.

At a meeting to be held in the Business Men's Club, Cincinnati, July 8, it is expected that plans will be consummated for the removal of the plant of the Reeves Engine & Machine Company from Trenton, N. J., to Cincinnati, with an increased capitalization and equipment. It is desired to form a $150,000 corporation, of which $100,000 is to be subscribed locally. Clifton Reeves, the president, will furnish $32,000, and $18,000 is to be kept as treasury stock. Mr. Reeves' investigations have shown that no engine of the type manufactured by him is built between Springfield, Ill., and Erie, Pa., and that the South, a rapidly growing territory for high speed engines, is advantageously reached from the Cincinnati market.

May Exports and Imports of Iron and Steel.

According to the May report of the Bureau of Statistics of the Department of Commerce and Labor, a sharp decline was experienced that month in the exports of iron and steel and manufactures thereof. The total value of such exports, not including ore, was only $11,281,425, against $15,467,319 in the preceding month and $14,594,043 in May, 1907. The falling off was also heavy in the figures given for quantities, as the total for May was only 64,020 gross tons, against 93,522 tons in April, 96,437 tons in March, 81,755 tons in February and 74,352 tons in January.

The following table gives the details of the exports of commodities for which quanaities are given, for May and for the 11 months of the current fiscal year ending with May, as compared with the corresponding periods of the previous year:

Exports of Iron and Steel.

	May.		Eleven months.	
	1908.	1907.	1908.	1907.
	Gross tons.	Gross tons.	Gross tons.	Gross tons.
Pig Iron	3,621	7,342	47,612	79,043
Scrap	1,840	5,815	18,527	20,207
Bar iron	634	1,214	12,443	39,979
Wire rods	401	551	6,072	9,573
Steel bars	2,818	8,080	60,106	44,532
Billets, blooms, &c	3,831	7,305	87,310	110,116
Hoop, band, &c	170	195	8,285	5,467
Steel rails	11,440	11,726	263,108	272,964
Iron sheets and plates	3,208	2,924	38,900	27,158
Steel sheets and plates	5,320	8,954	56,626	90,678
Tin and terne plates	2,220	2,089	14,897	8,220
Structural iron and steel	5,091	9,838	125,882	113,637
Wire	12,077	10,848	146,545	149,514
Cut nails	588	653	5,953	7,206
Wire nails	1,640	3,075	34,282	36,352
All other nails, including tacks	238	279	5,283	5,930
Pipes and fittings	8,883	10,653	159,638	115,691
Totals	64,020	91,541	1,091,469	1,136,267

The import movement is now so small that the changes from month to month are not significant. The total value of the imports of iron and steel and manufactures thereof, not including ore, for May was $1,347,332, against $1,633,812 in April. Taking the commodities for which quantities are given, the May total was 13,584 gross tons, against 12,342 tons in April, 15,885 tons in March, 19,054 tons in February and 28,008 tons in January.

The following table shows the details of the imports of these commodities for May and for the 11 months of the current fiscal year ending with May, as compared with the corresponding periods of the previous year:

Imports of Iron and Steel.

	May.		Eleven months.	
	1908.	1907.	1908.	1907.
	Gross tons.	Gross tons.	Gross tons.	Gross tons.
Pig iron	4,975	66,276	194,751	519,961
Scrap	....	3,071	17,077	17,725
Bar iron	300	3,034	31,645	34,278
Rails	7	23	2,633	3,947
Hoop, band, &c	9	296	472	4,007
Billets, bars and steel in forms n.e.s	818	1,462	15,401	17,617
Sheets and plates	152	164	2,381	3,188
Tin and terne plates	6,642	7,874	55,180	59,749
Wire rods	630	1,774	12,461	16,304
Structural iron and steel	51	171	1,470	9,096
Totals	13,584	84,145	333,471	685,872

The imports of iron ore in May were 51,780 gross tons, against 48,153 tons in April, 52,729 tons in March and 80,095 tons in February. Of the May imports of ore, 44,560 tons came from Cuba.

The total value of all kinds of exports of iron and steel, not including ore, for the 11 months ending with

May was $172,304,248, against $164,304,612 in the corresponding period of the previous year. The total value of similar imports for the 11 months ending with May was $25,848,258, against $37,315,606 in the corresponding period of the previous year.

Canadian Duties and American Steel in the Detroit River Tunnel.

In March last *The Iron Age* published an article describing the "made in Canada" commotion which followed the wide publication in the Toronto newspapers that American steel and American cement were being used in the railroad tunnel under the Detroit River. It was then remarked that the commotion which up to that time had been confined to the newspaper world would surely extend to Parliament. As a matter of fact, it did reach the House of Commons a few days ago, when this grievance was made the subject of a long and personal debate at the time the House was voting money for the Department of Customs.

Mr. Cockshutt, a Conservative Ontario member, opened the attack on the Government, and set out to prove that there is a section of the tunnel 3000 ft. long between the portal and the river bed on the Windsor side of the river which is not a part of the tunnel, according to the rulings of the United States customs regulations. He added:

But, according to the interpretation of our Minister of Customs, this part of the tunnel, which will cost about $3,000,000 to construct, is considered to be part of the tunnel; and the labor and the materials required for it are allowed to come in from the United States free of duty and without any restriction. For this part of the tunnel American cement and American steel are allowed to come in duty free, with the result that $50,000 of revenue has been thrown away.

I hope that the Minister of Customs will take the House into his confidence and tell us what influences were set to work to cause him to give these favors to this American tunnel company. What were the influences at work? Was it in the interest of the Government? Was it in the interest of the country? Was it in the interest of the manufacturers? Was it in the interest of the workingmen? Let the Minister answer these questions.

Mr. Paterson, the Minister of Customs, promptly did answer. First he quoted the following item from the free list of the Tariff act of 1906:

Materials to be used in Canada for construction of bridges and tunnels crossing the boundary between the United States and Canada when similar materials are admitted free under similar circumstances into the United States, under regulations prescribed by the Ministers of Customs.

Next the Minister of Customs ran over the list of international bridges and tunnels that were constructed between 1883, when the bridge over the Niagara River was built, and the beginning of work on the Detroit tunnel; and he assured the House that in all these international works the Canadian rule as to customs duty was the same as had been followed in connection with the tunnel under the Detroit River. He went on:

Without depreciating our own manufacturers, it would be reasonable to say that the steel for such a structure would be prepared in the United States. It is probable that there are but a few firms in the United States that could produce it. We are carrying out what we consider to be the law. We feel sure we are right. We are taking every precaution that can be taken that the spirit of the law shall be carried out; that no favoritism shall be shown; that no discrimination against Canadians shall be allowed. Whatever the law instructs us to do shall be done; but if the law says that certain articles are to be admitted free of duty, we cannot collect duty on them and should be violating our duty if we attempted to do so.

Mr. Foster and other conservative members went to the aid of Mr. Cockshutt. Not one of the critics of the Government claimed that there existed in Canada a plant at which steel for the Detroit tunnel could be made. The discussion in Parliament, like the newspaper commotion which preceded it, is of significance in that it shows that with every new concession which is made to the protectionists by the Laurier government there comes among manufacturers and among the Conservatives, who are eager to get back into power, an increasing sensitiveness on the "made in Canada" question.

E. P.

Customs Decisions.

Steel Tubular Gas Tanks.

The Treasury Department has given formal notice that the Government's attempt to collect a 45 per cent. duty on steel tubular tanks used for holding gas will be abandoned. A test case standing in the name of the Liquid Carbonic Company, New York, was decided recently in the United States Circuit Court of Appeals in favor of the importer, whose claim was that the tanks are entitled to enter at 35 per cent. under the provision in paragraph 152 for "tubes." They consist of bottle shaped vessels of steel about 4 ft. long and 18 in. in diameter, with a steel cap fitted over and shrunk on one end, thus permanently closing it, and with the other end tapered to a neck. Both the Board of Appraisers and the Circuit Court denied the Government's contention that the articles fall within the purview of the basket clause of the metal schedule. Inasmuch as the Appellate tribunal indorsed the conclusions reached by the board and the lower courts, the Attorney-General advised the Treasury officials that no further proceedings would be instituted. Refunds will be given to importers whose entries have paid the higher rate of duty.

Consular Invoice Takes Precedence.

In a decision by General Appraiser Hay, the principle is laid down that in instances where the collector of customs has before him both a pro forma and a consular invoice, and there is no valid appraisement by the appraising official, it is the collector's duty to assess and collect duty upon the value of the merchandise as stated in the consular invoice. In the case before the board, the collector assessed duty on solder imported by A. S. Lascelles & Co., New York. The prices stated in the pro forma invoice exceeded those appearing in the consular invoice. The collector exacted duty on the values stated in the pro forma invoice, although there had been no appraisal of the merchandise by the appraiser of the port. This action the board holds to have been illegal.

The Northwestern Iron Company Increases Its Capital.—The Northwestern Iron Company, operating iron ore mines and furnaces at Mayville, Wis., and with general offices at Milwaukee, has just increased its working capital from $500,000 to $1,000,000. The company was recently acquired by Ferdinand Schlesinger and others of the Milwaukee Coke & Gas Company. With the increased capitalization it is announced that immediate improvements will be made at the Mayville plant aggregating in cost between $300,000 and $400,000. The improvements will include the introduction of many labor saving devices; the construction of new steel trestles at furnace A, and also the building of ore and coke pockets on the trestles for the expeditious handling of those products; four new stoves to be added to furnace A, a dry house, machine shop, storehouse and oil house. All of these improvements are to be made at once; in fact, work is already in progress. The company has also in contemplation the erection of a dry air blast plant at a large expense and which will greatly increase the facilities for a large output of iron ore. The present capacity is between 500 and 600 tons a day. The plant of the Northwestern Iron Company is now considered one of the model merchant plants of the country, and with the improvements to be made it will take still higher rank.

The Sharon Steel Hoop Company, Sharon, Pa., has decided not to recognize the Amalgamated Association in the future, and has not entered into any arrangements with it for the year beginning July 1. The company is operating its open hearth steel plant and its finishing mills in the manufacture of steel billets, hoops, bands and cotton ties to about 50 per cent. of capacity, and has made no change among its employees.

Trade Publications.

Coke Drawing and Loading Machines.—Covington Machine Company, Covington, Va. Catalogue. Consists largely of views of plants where the company's machines are installed. The machine is described as consisting of two principal parts, an extractor for drawing the coke out of the ovens and a conveyor for screening and loading it into cars. They are mounted on separate trucks connected by a draw-bar, so that the conveyor travels with the extractor as it moves up and down the track. The frame of the extractor consists of one heavy casting mounted on four wheels keyed fast to the axles, which are driven through beveled gears. A number of machines in operation are shown.

Grinders and Grinding Attachments.—Diamond Machine Company, Providence, R. I. Catalogue. Included in this book is a view of the company's new drop apron and removable water guard, used in connection with a wet tool grinder. This apron is of sufficient size to prevent the grinder from throwing the water on the operator. A motor driven grinding machine is shown with the motor attached to the rear of the grinder, and sprockets and chains employed in driving the wheel are encased by a feed metal guard. Bench tool grinding machines and a double head disk grinder are also shown.

Steam Heating Vacuum Pumps.—Blake & Knowles Steam Pump Works, 115 Broadway, New York. Booklet B K-810. Shows a direct acting horizontal steam heating vacuum pump and a power driven steam heating vacuum pump, both of the double acting piston type. The first is made up to a 16-in. stroke and the second up to a 12-in. stroke.

Gaskets.—Smooth-On Mfg. Company, Jersey City, N. J. Circular. Devoted to the Smooth-On gaskets, which are covered with Smooth-On elastic iron cement, capable, it is claimed, of expanding and contracting like iron. The statement is made that a sample gasket will be sent to any engineer sending his business address.

Electrically Driven Tools.—James Clark, Jr., Electric Company, 313-315 West Main street, Louisville, Ky. Catalogue, 9½ x 11 in., 54 pages. This book illustrates an extensive line of small electrically driven tools, such as hand drills, breast drills, screw feed portable drills, grinders and buffers, grinders for lathe carriage or tool post, water tool grinders, electrically driven back saws, sensitive drills, two and three spindle drills and radial drills up to 30 in. size. Motors and generators are also shown and several pages are devoted to testimonials.

Contractors' Machinery.—Western Wheeled Scraper Company, Aurora, Ill. Catalogue, 6½ x 9¾ in., 104 pages. Contains descriptions of a general line of machinery for handling earth and stone, including road machinery, excavating equipment, farming machinery, railroad dumping cars, wagon loaders and ditchers, rock crushers, &c. Views are also given of some of the larger machines in use.

Air Pumps, Motors and Transmitters.—Emerson Electric Mfg. Company, St. Louis, Mo. Bulletin No. 3803, replacing bulletin No. 3802, shows two types of motor driven air pumps, single and double cylinder. Bulletin 3126, replacing bulletins 3119, 3120 and 3121, is devoted to single phase induction motors, generally described in the company's former literature. Bulletin 3125, replacing bulletin 3115, refers to single phase induction motors of ⅛ and ⅙ hp., and bulletin 3124, replacing 3117, shows the same type of motor down to ¼ hp. Bulletin 3212 shows a bipolar inclosed motor of ¼ to ½ hp., and bulletin 3905 shows motors with transmitters operating factory sewing machines.

Locomotives.—H. K. Porter Company, Pittsburgh, Pa. Catalogue, 6¼ x 9¼ in., 223 pages. This is the tenth edition of the company's catalogue devoted to light locomotives. It is bound in cloth and completely indexed. Light locomotives for coke oven service, logging service, plantation, passenger service, &c., are shown and described. Machines operated by both steam and compressed air are illustrated and complete data as to prices and construction details is given. Interesting information such as comparative cost of operating locomotives as against animal haulage is given, with estimates of the cost of tracks and maintenance. Useful information such as weights of cars and lumber and other data helpful in the operation of industrial railroads is included.

Boiler Feed Pumps.—Allentown Rolling Mills, Allentown, Pa. Pamphlet called "Pump Data No. 11." Views of several types and sizes of boiler feed pumps, together with sectional drawings, are shown, with tables of the range of operation.

Roofing.—Asbestos Protected Metal Company, Canton, Mass. Catalogue No. 4. Deals with the application of asbestos protected metal to roofing in general. Describes the material, which is manufactured of annealed Bessemer sheet steel, pure asphalt and asbestos. Details its advantages: in the reduction of insurance rates because of its fire resisting qualities; equalization of temperatures; immunity from chemical fumes, hot cinders, exhaust steam, damp or salt air climate, &c. Goes into its advantages for interior use, in that it takes paint and is fireproof, sanitary and vermin proof. Details of the two brands, the Aspromet and the Duckback, are brought out, together with the various forms of the material and the method of its application. Catalogue No. 48A is devoted to the Robertson standard box car roof, which consists entirely of the asbestos protected metal. Both catalogues are profusely illustrated.

Firebrick and Firebrick Shapes.—Baltimore Retort & Fire Brick Company, Baltimore, Md. Bulletin No. 1. Different shapes of the company's firebrick are shown and tables showing the number of bricks required for a given amount of construction are included.

Flange Couplings and Clutch Shell Couplings.—C. S. Mersick & Co., 286-292 State street, New Haven, Conn. Folder. Shows Shaw combination flange couplings and Hercules and Ajax combination clutch shell couplings, and gives prices for various sizes.

Scientific Instruments.—Taylor Instrument Companies, Rochester, N. Y. Bulletin. Illustrates anemometers, pocket transits and airmeters, and quotes prices.

Side Dump Cars.—Atlas Car & Mfg. Company, Cleveland, Ohio. Bulletin 1065. Shows several types of side dump cars, including standard sized cars and extra heavy cars. Unassembled sections of a one-side rocker dump scale car are also illustrated.

Gas, Gasoline, Kerosene and Alcohol Engines.—Charter Gas Engine Company, Sterling, Ill. Folder and circulars. The former illustrates standard machines of these types made by the company, besides engines connected with electric dynamos. A sectional drawing showing the adaptability of gasoline engines in stern wheel boats and side wheel boats is given. The circulars advocate portable gasoline engines and Charter double acting pumps for deep well pumping and other purposes.

Hardness Tester.—Schuchardt & Schütte, 136 Liberty street, New York. Booklet. Describes an electro-magnetic instrument for determining the hardness of steel. An illustrated description of this instrument appeared in *The Iron Age*, April 9, 1908.

Glue Heaters.—Advance Machinery Company, Toledo, Ohio. Catalogue. Describes the Wetmore glue heating apparatus, which is made entirely of copper and consists of an air-tight glue heating chamber surrounded by a water chamber or pocket. The heaters are arranged for gas, gasoline, oil or electrical fuel, are fitted with patent agitators which can be operated by hand or power, and are made in sizes up to 100 gal. The catalogue is accompanied by circulars describing other types of glue heaters, some of which are made of cast iron under the name of Advance heaters. Another folder is devoted to gluing clamps.

Electric Blowers.—Electric Blower Company, Newton Center, Mass. Folders. Advertise the Marvel electric forge blowers for direct connection to motors.

Incandescent Units.—General Electric Company, Schenectady, N. Y. Bulletin 4561 consists of a pamphlet on illumination and illustrates the Gem lamp and fixtures. Bulletin 1104 illustrates the multiphase belted alternators. Bulletin 4530 describes the mercury arc rectifier. A four-page folder is devoted to flame arc lamps.

Antifriction Metals.—A. Allan & Son, 486 Greenwich street, New York. Folder. Advocates the Allan metal, which is supplied cast in segments of the proper size for applying to cylinders and other wearing cylinders.

Blowers.—B. F. Sturtevant Company, Hyde Park, Mass. Bulletin 153. Reproduces an article published in the *Engineering Magazine*, January, 1908, reciting the history of the development of the Sturtevant fan wheels.

Vanadium.—American Vanadium Company, Pittsburgh, Pa. Pamphlet, reproducing an address made by J. Kent Smith before the Association of Licensed Automobile Maunfacturers on the services of vanadium in automobile manufacture. Tables of tests are appended. Another pamphlet reproduces an address on "Vanadium—Its Services in Engineering Steels," made by Mr. Smith before the Engineers' Society of Western Pennsylvania, at Pittsburgh, June 4, 1907.

Deep Well Pumps.—Keystone Driller Company, Beaver Falls, Pa. Catalogue No. 6. Describes the Downie deep well pumps, formerly made by the Downie Pump Company, Downie, Pa., but now manufactured by the Keystone Driller Company. The catalogue advocates the advantages of wells as a permanent source of water supply and describes the construction of several types of pumps, including single stroke steam pumps, double stroke steam pumps, hand geared pumps, and includes directions for installing. Several types of pumps are illustrated, with tables of measurements and capacities and other useful data, besides illustrations of pump accessories.

Reinforced Brazing.—Reinforced Brazing & Machine Company, 2525 Liberty avenue, Pittsburgh, Pa. Catalogue. Describes the company's process of brazing for restoring broken castings, which the company claims is original with it, and by which the spelter is introduced directly into the bolts of iron on both sides of the brazed portions. A number of restored castings are shown, including a rolling mill housing weighing 24,000 lb., which was successfully reinforced and brazed by the process.

PERSONAL.

Joseph G. Butler, Jr., Youngstown, Ohio, has been elected president of the Merchant Marine League of the United States, which has its headquarters at Cleveland, Ohio. Mr. Butler sailed for Europe last week.

W. D. Sargent, New York, president of the Reading Steel Casting Company, Reading, Pa., and George M. Sargent, Chicago, sailed for Europe July 2 on the La Lorraine.

Fred W. Wurster of F. W. Wurster & Co., Brooklyn, N. Y., has been elected a director of the Manufacturers' National Bank of Brooklyn.

Howard F. Martin, general manager of sales of the Pennsylvania Steel Company and Maryland Steel Company, sails for Europe July 16.

F. W. Jaeger, New York manager for Alfred H. Schutte, sails to-day for a short European trip.

W. S. Boyd, formerly purchasing agent of the Page Woven Wire Fence Company, Monessen, Pa., has resigned to become connected with the Pittsburgh Steel Company, Pittsburgh, whose mills are at Monessen and Glassport, Pa., as assistant purchasing agent. D. S. Muckley has been made purchasing agent of the Page Woven Wire Fence Company.

James O. Barnett, formerly manager of the steel casting department of the United Engineering & Foundry Company, Pittsburgh, has resigned to become general manager of the American Roll & Foundry Company, Canton, Ohio.

R. C. Lewis, manager of the Southern office of Manning, Maxwell & Moore, Inc., with headquarters at Birmingham, Ala., has returned to his home in Hartford, Conn., to take charge of the Connecticut territory for the same house.

E. G. Moss, superintendent of the Warner Iron Company's plant at Cumberland Furnace, Tenn., has resigned and will spend a couple of months at Creedmoor, N. C., after which time he will be located at Ensley, Ala.

C. A. Meissner, of the technical staff of the United States Steel Corporation, has sailed for Europe.

OBITUARY.

JOHN H. ECKEL, Syracuse, N. Y., died June 28, after a short illness, aged 42 years. He was born in Syracuse. Coming from a family long engaged in the manufacture of steel, he entered the mill of the late W. A. Sweet when 14 years old. He continued in this business until he became a master roller, and nine years ago with his five brothers incorporated the Eckels-Nye Steel Company, building a plant for the manufacture of merchant steel, which has had a successful career. The five brothers above referred to are Jacob, Peter, Louis, Philip and Frank, all of whom are living.

SAMUEL M. SIMPSON, Boston, of the firm of L. M. Ham & Co., machinists, is dead at the age of 73 years. He was a native of York, Maine, and had been in the iron working business since he went to Boston as a boy. He leaves a widow, a son and two daughters.

EDWARD ASCHERSON died June 24 at his country seat, Pett Place, Charing, Kent, England, aged 72 years. He was one of the senior partners of Naylor, Benzon & Co., London, and was at one time a partner of Naylor & Co., New York.

The National Wire & Iron Works, Houston, Texas, is seeking a new site that will afford room and facilities for extensive expansion of its business. To this end an increase in capital stock is now under consideration. The present location in Louisiana street is entirely too small, and as soon as a new site is selected a rolling mill for the manufacture of cotton ties, railroad spikes, nails and merchant iron will be installed. It is also proposed to build a wire mill, which will not only supply all of this material required in the company's works, but will afford a surplus for distribution in the market. The company also expects to build a foundry large enough to supply its own castings.

The International Steam Pump Company.

The International Steam Pump Company has issued its annual report for the year ending March 31, 1908. The profit and loss account compares as follows:

	1908.	1907.
Manufacturing and trading profits..	$1,917,526	$2,288,914
Other income.....	308,727	256,991
Total income.....	$2,226,253	$2,545,905
Interest, discount, &c.....	185,856	156,201
Balance.....	$2,040,397	$2,389,704
Depreciation, &c.....	421,890	467,691
Balance.....	$1,618,507	$1,922,013
Interest, funded debt, sinking fund and discount.....	394,962	394,889
Balance for dividends.....	$1,223,545	$1,527,124
Preferred stock dividends.....	859,800	859,800
Surplus.....	$363,745	$667,324
Previous surplus.....	2,551,707	2,029,184
Total surplus.....	$2,915,452	$2,696,508
Adjustments	*322,583	144,802
Final surplus.....	$2,592,869	$2,551,706

* Special appropriation to meet revaluation of assets brought forward from former years.

The general consolidated balance sheet of the International Steam Pump Company, as of March 31, 1908, compares as follows:

Assets.	1908.	1907.
Real estate, &c.....	$33,154,277	$32,748,010
Discount on bonds.....	137,707	150,106
Manufacturing materials, supplies, &c.	4,778,549	5,829,341
Accounts and bills receivable.....	3,825,377	4,327,788
Miscellaneous	484,206	256,435
Associated companies' balance.....	42,570	67,171
Cash	417,114	621,727
Totals.....	$42,839,801	$44,000,579
Liabilities.		
Capital liabilities.....	$36,322,820	$36,414,485
Trade accounts.....	257,807	564,447
Miscellaneous	176,508	177,536
Held for dividends.....	170,250	170,445
Suspended accounts.....	2,592,867	2,551,706
Reserve for completion of contract...	127,505	.....
Reserve operation sinking fund.....	423,322	326,332
Surplus capital.....	973,221	1,116,399
Notes payable.....	1,795,500	2,566,452
Totals.....	$42,839,801	$44,000,579

President Dunn says: "During the first six months of the fiscal year—namely, from April to October, 1907—the orders booked equaled in amount the average for the preceding year, which was the largest year of our company. For the last six months of the fiscal year, owing to the financial disturbance which affected the country at large, the orders booked fell off about 40 per cent. There were unfilled orders on the books at March 31, 1908, amounting to $4,000,000. The profits, after charging off $421,890 for depreciation on buildings, machinery, tools, patterns, drawings, &c., were $1,618,506 for the year just closed. The business of the Power & Mining Machinery Company, at Cudahy, Wis., shows a substantial gain over the former years, resulting in a profit largely in excess of the amount guaranteed. Our foreign company, the Worthington Pump Company, Ltd., reports a very successful year, with increased profits over the previous year. Since the close of the fiscal year there has been a gradual improvement in business, which, during the past few weeks, has resulted in a marked increase in the volume of orders booked by the company."

The American Sheet & Tin Plate Company operates nine tin plate plants containing 152 hot mills, for which it signs the Amalgamated scale, and nine tin plate plants containing 90 hot mills, for which it does not sign any wage scale. It also operates six sheet mill plants containing 51 mills, for which it signs the Amalgamated scale, and 12 sheet mills containing 129 hot mills, for which it does not sign any wage scale.

The report of H. S. Pell, receiver of the Niles Boiler Company, Niles, Ohio, has been approved by the courts, and he was allowed $650 for his services and was discharged from further services in that capacity.

Pig Iron Production.

More Furnaces Blown in in June.

Total Output for the First Half of the Year About 6,900,000 Gross Tons.

Our pig iron statistics for June show a slight falling off in the daily rate of production from that of May, in addition to the decrease due to a 30-day month. The production of coke and anthracite iron is shown to have been 1,088,634 tons, or 36,287 tons a day, against 1,165,688 tons, or 37,603 tons a day, in May. The number of furnaces blown in last month exceeded by 12 the number blown out, 151 being active on July 1, against 139 on June 1, and the weekly capacity of active furnaces July 1 was 264,452 tons, as compared with 259,284 tons June 1. It should be said again that under the conditions existing for some months the active capacity at the beginning of a month is less of a criterion than usual of the probable performance for the month. In so many cases furnaces are slowed down, so that stockpiles may not increase too fast, and adjustments are being made frequently in the case of large interests, to preserve a close correspondence between make and the requirements of steel works. At one group of furnaces, for example, three stacks made practically as much iron in June as four made in May, and in another case three stacks active in June made less iron than two in the same group in May.

Production in the First Half of 1908.

With the receipt of the June production figures for coke and anthracite iron an approximation is possible of the output of pig iron in the first half of 1908, an estimate being made of the charcoal iron production, which is not reported monthly. Assuming that there was a less sharp restriction in charcoal iron output than in coke iron, owing to the special conditions as to fuel supply connected with the former industry, the total pig iron production in the first six months of the year may be put at 6,900,000 gross tons. This compares as follows with the output of previous six months periods, as shown by the statistics of the American Iron and Steel Association, in gross tons:

	1905.	1906.	1907.	1908.
First half	11,163,175	12,582,250	13,478,044	6,900,000
Second half	11,829,205	12,724,941	12,303,317	.....
Totals	22,992,380	25,307,191	25,781,361	.....

Such a precipitous breaking off in production is without parallel in the records of the iron trade. In 1904 a sharp falling off was looked for from the rate of production in the first half of 1903, but it turned out to be only about 15 per cent., the total for the first half of 1903 being 9,707,367 tons and for the first half of 1904, 8,173,438 tons. A noteworthy fact about 1904, moreover, is that production in the second half exceeded that in the second half of 1903—8,323,595 tons against 8,301,885 tons. There is not the slightest probability that the second half of 1908 will exceed the output of 12,303,317 tons made in the second half of last year. In the first six months of this year the production has been less than 52 per cent. of the high record of 13,478,044 tons made in the first half of 1907.

The daily output of the steel works and merchant furnaces respectively in the first six months of the year was as follows:

Daily Rate of Production.—Gross Tons.

	Steel works.	Merchant.	Total.
January	21,432	12,286	33,718
February	25,717	11,446	37,163
March	27,145	12,474	39,619
April	24,185	14,104	38,289
May	24,505	13,098	37,603
June	23,923	12,364	36,287

June Product by Districts.

The table below gives the production of coke and anthracite furnaces in June and the four months preceding:

Monthly Pig Iron Production.—Gross Tons.

	Feb. (29 days)	March. (31 days)	April. (30 days)	May. (31 days)	June. (30 days)
New York	65,567	49,231	62,263	64,746	61,249
New Jersey	19,880	23,243	22,701	20,889	15,963
Lehigh Valley	39,732	39,105	28,919	28,712	26,357
Schuylkill Val.	22,338	29,104	28,654	25,566	23,814
Lower Susquehanna and Lebanon Val.	19,363	23,907	28,315	29,943	31,058
Pittsburgh Dis	324,418	325,953	276,883	284,571	259,771
Shenango Val.	68,919	76,377	71,970	53,720	58,244
West. Penn	51,283	62,782	54,570	54,185	59,521
Md., Va., and Kentucky	27,775	41,452	48,955	49,273	47,110
Wheeling Dis.	12,961	18,988	17,930	18,121	16,539
Mahoning Val.	93,332	105,310	94,780	99,788	89,238
Central and North Ohio.	75,137	94,952	88,047	88,995	70,283
Hocking Valley and Hanging Rock	12,296	20,108	18,772	21,259	20,342
Mich.,Minn.,Mo., Wis., Colo	36,129	39,327	36,808	36,831	34,363
Chicago Dis.	99,289	147,014	157,633	165,291	153,162
Alabama	91,209	114,295	94,754	104,697	107,391
Tennessee, Georgia and Texas	18,112	17,056	17,648	19,101	14,229
Totals	1,077,740	1,228,204	1,149,602	1,165,688	1,088,634

Capacity in Blast July 1 and June 1.

The table below gives the weekly capacity of coke and anthracite furnaces in blast July 1 and June 1:

Coke and Anthracite Furnaces in Blast.

Location of furnaces.	Total number of stacks.	July 1. Number in blast.	July 1. Capacity per week.	June 1. Number in blast.	June 1. Capacity per week.
New York:					
Buffalo	14	6	12,022	7	13,372
Other New York	7	2	1,712	1	1,253
New Jersey	8	2	3,725	2	3,656
Spiegel	2	0	0	0	0
Pennsylvania:					
Lehigh Valley	25	6	6,150	5	5,965
Spiegel	3	1	130	1	128
Schuylkill Valley	15	4	5,557	4	5,768
Low. Susquehanna	7	2	3,564	2	3,350
Spiegel	1	0	0	0	0
Lebanon Valley	10	4	3,683	4	3,423
Pittsburgh Dist.	45	22	60,949	19	57,610
Spiegel	3	2	2,574	2	1,957
Shenango Valley	20	7	14,874	6	13,937
West. Penn	27	10	14,075	10	14,650
Maryland	4	2	4,142	2	4,214
Wheeling Dist.	14	2	3,859	2	4,088
Ohio:					
Mahoning Valley	18	10	23,522	10	25,648
Central and Northern and Mich.	22	7	18,172	7	18,669
Hocking Valley and Hanging Rock	12	6	4,741	6	4,206
Illinois and Indiana	24	15	36,538	14	38,012
Spiegel	2	1	1,012	1	1,125
Minnesota	1	0	0	0	0
Wisconsin	6	2	2,275	1	962
Missouri	1	1	705	0	0
Colorado	6	2	3,892	2	4,326
The South:					
Virginia	23	8	6,202	8	5,677
Kentucky	7	1	1,218	1	1,148
Alabama	46	19	25,172	16	22,430
Tennessee	18	6	3,537	6	3,710
Georgia and Texas	3	1	450	0	0
Totals	394	151	264,452	139	259,284

Among furnaces which started up in June were Missouri at St. Louis, Standish in New York, three Carnegie stacks in the Pittsburgh District, Fannie in the Shenango Valley, Colonial in western Pennsylvania, Radford Crane in Virginia, No. 3 Calumet at South Chicago, B. Mayville in Wisconsin, Struthers in the Mahoning Valley, Alice, one Bessemer and two Ensley in Alabama and Sam Lanham in Texas.

The list of furnaces blown out between June 1 and July 1 includes one Lackawanna at Buffalo, Victoria in Virginia, one Ohio in the Mahoning Valley and one Clifton in Alabama.

Production of Steel Companies.

Returns from all the plants of the United States Steel Corporation, the Cambria, Pennsylvania, Maryland, Lackawanna, Wheeling, Republic, Youngstown Sheet & Tube Company, Jones & Laughlin, La Belle, Bethlehem, Calumet, Inland, Colorado and Tennessee (Ensley) companies

show the following totals of product month by month. We give separately a statement of the output of spiegeleisen and ferromanganese, which is included for each month in the total production:

Production of Steel Companies.—Gross Tons.

	Pig.—Total production.—			Spiegeleisen and ferromanganese.	
	1906.	1907.	1908.	1907.	1908.
January	1,358,015	1,406,397	664,415	21,477	20,254
February	1,226,760	1,317,923	745,802	19,444	9,402
March	1,400,395	1,424,827	841,502	31,091	13,750
April	1,333,591	1,446,788	725,548	26,527	12,363
May	1,372,423	1,470,080	759,674	28,822	17,823
June	1,293,437	1,457,230	717,689	30,942	15,958
July	1,323,391	1,452,557	.....	25,343	.....
August	1,237,485	1,445,685	.....	23,696	.....
September	1,264,380	1,417,153	.....	30,270	.....
October	1,452,200	1,514,521	.....	35,105	.....
November	1,411,350	1,084,114	.....	21,861	.....
December	1,445,528	659,459	.....	19,480	.....

A Record of Active Capacity.

The active weekly capacity in coke and anthracite iron has shown the following fluctuations since January 1, 1903:

	Capacity per week.		Capacity per week.
July 1	264,452	September 1	412,563
June 1	259,284	August 1	410,088
May 1	268,674	July 1	408,617
April 1	264,890	June 1	443,092
March 1	267,437	May 1	452,031
February 1	241,925	April 1	439,564
January 1, 1908	232,652	March 1	403,157
December 1, 1907	347,372	February 1	405,792
November 1	491,436	January 1, 1905	377,879
October 1	511,397	December 1, 1904	357,846
September 1	507,768	November 1	334,249
August 1	513,471	October 1	319,249
July 1	528,170	September 1	291,573
June 1	523,220	August 1	246,092
May 1	524,538	July 1	272,301
April 1	496,456	June 1	336,107
March 1	511,035	May 1	368,244
February 1	492,359	April 1	337,257
January 1, 1907	507,397	March 1	308,751
December 1, 1906	513,860	February 1	273,692
November 1	500,580	January 1, 1904	185,636
October 1	469,665	December 1, 1903	244,156
September 1	441,426	November 1	273,715
August 1	449,908	October 1	353,142
July 1	460,570	September 1	360,197
June 1	472,622	August 1	353,681
May 1	484,031	July 1	384,825
April 1	484,240	June 1	388,178
March 1	479,737	May 1	373,496
February 1	482,156	April 1	386,215
January 1, 1906	463,673	March 1	347,424
December 1, 1905	475,814	February 1	335,239
November 1	460,449	January 1, 1903	346,073
October 1	445,468		

The Production of Asbestos in 1907.

WASHINGTON, D. C., July 7, 1908.—There was a marked decrease in the production of asbestos in the United States in 1907, the output amounting to but 653 net tons, valued at $11,899, as compared with 1695 net tons valued at $28,565 in 1906, according to the forthcoming annual report of the United States Geological Survey. The cause of this decline is found in the better quality and greater abundance and accessibility of the Canadian asbestos, which completely dominates the industry of the United States. There was a large increase in imports in 1907, which much more than offset the decrease in domestic production.

Nearly all the output of asbestos in 1907 came from the Sall Mountain and Hollywood Mountain of Georgia, which is the only State that furnished asbestos for the market in 1907, and nearly half of the quantity produced was exported. The largest output in the history of the industry in the United States was in 1905, when the product amounted to 3100 tons.

Owing to the variety of forms in which asbestos is imported the customs statistics do not show quantities. The value of the unmanufactured asbestos imported in 1907 was $1,104,109, while that of the manufactured asbestos was $200,371, making a total of $1,316,379. In 1906 the total value of the imports of asbestos was $1,076,170. The production of Canada is now nearly 100 times that of the United States. Practically all the unmanufactured asbestos imported into the United States comes from Canada. As to the manufactured asbestos, however, the reverse is true; only a small quantity comes from Canada and of the rest over 75 per cent. comes from the United Kingdom. More than a year ago it was estimated that Canada produced 85 per cent. of the world's supply of asbestos. In 1907, owing to the large increase in the production of Canada, the Dominion doubtless contributed a still larger percentage of the total yield of the world and its controlling position in the asbestos industry is apparent. Twelve companies are reported as producing asbestos in Canada in 1907, and four new ones are making extensive preparations for production in 1908, so that a much larger yield may be expected for the current year.

When we consider the manufactured products, the United States is in advance of all other countries. The relatively great importance of the industry to the United States results directly from the fact that a number of the largest Canadian mines are owned in the United States and that several of the owners have factories in this country. The Keasbey & Mattison Company, owning the Bell Asbestos Company mines at Thetford, Canada, has several large factories at Ambler, Pa. The H. W. Johns-Manville Company, whose mines are near Danville, Canada, has large factories at Brooklyn, N. Y., Milwaukee and West Milwaukee, in Wisconsin. The mine which up to the present time is reported to have produced more asbestos than any other is the King Brothers mine at Thetford, controlled by a company of which R. H. Martin of New York is president. The Beaver Asbestos Company, with mine near Thetford, is under the same management. But these companies, the Dominion Asbestos Company, the Manhattan Asbestos Company, and several other companies, all of which are said to be controlled by American capital, are not known to be manufacturers in the United States, though the bulk of the raw material from most of their mines comes to this country.

Raw asbestos is imported free into the United States, while there is a duty of 25 per cent. on imported manufactured asbestos. In Canada all the larger mines are reported as paying an annual license of $500.

In the amphibole asbestos trade in the United States there was a decline of about 10 per cent. in 1907, though the price ranged about $18 per ton, a figure somewhat higher than for 1906.

The demand for the best grades of chrysotile asbestos has kept ahead of the supply. Some of the manufacturers report that the best grades cannot be bought in the open market, and that the high prices have a tendency to restrain the progress of the industry. The range of prices per ton for the various grades reported by a number of firms is as follows:

No. 1 crude asbestos	$275 to $350
No. 2 crude asbestos	150 to 200
Asbestos fiber (according to grading)	25 to 110
Fines (according to grading)	10 to 25

The special features of interest regarding the industry in Canada during 1907 are said to have been increased output, higher prices and further consolidation of mining interests. W. L. C.

A Strike in Alabama Coal Mines.—Union coal miners employed in a number of merchant mines and in mines of some of the smaller furnace interests in Alabama have gone out on a strike following the refusal of the operators to grant certain demands which the union sought to make effective July 1. The large interests are not involved, having freed their mines from union control in the strike of several years ago. However, the effort of some of the companies whose men are out to get in new men may affect production at the nonunion mines, and the trouble may become a factor, though not an important one, in the pig iron situation.

The Page Woven Wire Fence Company, Monessen, Pa., has recently added a 50-ton open hearth steel furnace to its plant, which previously contained two 15-ton and one 50-ton furnace.

NEWS OF THE WORKS.

Iron and Steel.

The furnace of the Hudson Iron Company, Secaucus, N. J., which has been out of blast since May 20, will be repaired and changes will be made with a view to increasing the output. The company is mining about 200 tons a day of magnetic ore at its Forest of Dean mine near Fort Montgomery, N. Y., and is making shipments to New Jersey and Eastern Pennsylvania furnaces. The average of a recent shipment was 62.54 per cent. metallic iron.

The two blast furnaces of the Lehigh Iron & Steel Company, Allentown, Pa., are being dismantled.

The furnace of the St. Louis Blast Furnace Company, St. Louis, Mo., was blown in June 16.

Furnace D of the Bethlehem Steel Company, South Bethlehem, Pa., is being dismantled and will be replaced by a modern furnace similar to Furnace E, 90 x 22 ft., which was blown in in April, 1907.

William Swindell & Brother, engineers and contractors, German National Bank Building, Pittsburgh, have received an order from the Superior Steel Company, Carnegie, Pa., for two large Swindell patented regenerative heating furnaces, and also an order from the West Leechburg Steel Company, West Leechburg, Pa., for one large Swindell patented regenerative heating furnace. Both of these companies have had a number of heating furnaces of this type in operation for some time, and the placing of these additional orders indicates very strongly that they are giving entire satisfaction.

The Virginia Iron, Coal & Coke Company blew in its Radford-Crane furnace at Radford, Va., the last week in June.

The Carnegie Steel Company blew in three more of its furnaces in the Pittsburgh district in June, these being furnace J at Edgar Thomson, Carrie No. 4 and Duquesne No. 3. The company has a total of 32 blast furnaces in the Pittsburgh district, of which 17 were active on July 1 and 15 were idle.

Nos. 1 and 4 blast furnaces of the National Tube Company at McKeesport, Pa., were in blast in June, while Nos. 2 and 3 stacks are still idle.

Four of the five Eliza furnaces of the Jones & Laughlin Steel Company at Pittsburgh are in blast. Soho stack is still idle.

The Wisconsin Steel Company blew in the new No. 3 furnace of its Calumet group at South Chicago on June 30.

The Northwestern Iron Company blew in its Furnace B, Mayville, Wis., June 5.

The Struthers Furnace Company blew in Anna furnace at Struthers, Ohio, the last week in June.

The No. 2 Clifton furnace of the Alabama Consolidated Coal & Iron Company, at Ironaton, Ala., was blown out June 20 for relining.

Thomas J. Deane, the new owner of the blast furnace at Rome, Ga., expects to blow it in about August 1.

Sam Lanham furnace at the State Penitentiary, Rusk, Texas, was blown in June 24.

Victoria furnace of the Goshen Iron Company, Goshen, Va., was blown out June 9.

No. 1 furnace of the Lackawanna Steel Company, Buffalo, N. Y., was blown out June 10 for relining.

Standish furnace of the Northern Iron Company, Port Henry, N. Y., was blown in June 16 after relining.

The Durham Iron Company, Riegelsville, Bucks County, Pa., had its blast furnace in operation for two weeks in June, working up ore and coke which were on hand. The furnace had not been operated previously for many months.

The furnace of the Colonial Iron Company, Riddlesburg, Pa., was blown in June 10.

The Belfont Iron Works Company, Ironton, Ohio, expects to blow out its furnace about July 15 for repairs.

The Rosena Furnace of the Carnegie Steel Company, at New Castle, and Carrie No. 2 of the same company, at Rankin, Pa., were started up July 6.

The new No. 3 furnace of the Shenango Furnace Company, at Sharpsville, Pa., was blown in July 8. The company is now operating three blast furnaces, with a daily output of 1000 to 1200 tons.

General Machinery.

The capital stock of the American Locomotive Equipment Company, Chicago, has been increased from $200,000 to $300,000, for the purpose of taking care of the company's growing business.

The new plant of the W. B. Forbes Company, Hoboken, N. J., is to be established at New London, Conn. The company will move its present equipment to the new location and will probably install considerable new equipment.

Power Plant Equipment.

The Union Power Company, St. Cloud, Minn., has been organized with a capital stock of $100,000 to build a new electric light and power plant in that city to develop something over 1200 hp. The object of the Union Power Company in building the plant is not to operate it, but to lease it to the Public Service Company, which occupies the entire electric field in St. Cloud. Power for the operation of the plant will be supplied by the St. Cloud Water Power Company, which owns the dam.

The city of Omulgee, Okla., will receive bids until July 20 for one 60 hp. gas engine direct connected to 35 kw. generator or an automatic high speed engine and generator of the same capacity, one triplex pump direct connected to electric motor, standard water works hydrants and valves and other supplies. Specifications may be obtained from the O'Neil Engineering Company, Dallas, Texas.

Those interested in the Youghiogheny Light & Power Company, Oakland, Md., which intends to develop a 10,000 hp. plant at Swallow Falls in the Youghiogheny River, Muddy Creek Falls and the Deep River Falls, have incorporated the Oakland, Swallow Falls & Uniontown Electric Railway Company, to build an electric road from Oakland, Md., to Uniontown, Pa., with branches. The road will be operated by power from the new hydraulic plant. H. P. Tasker is general manager of the power company.

Foundries.

The Erie Foundry Company, Erie, Pa., whose plant was recently destroyed by fire, has decided upon plans for the pattern storage and pattern shop, which are being prepared by the Osborne Engineering Company of Cleveland. Plans for the building of a new foundry have not yet been completed.

The Independent Stove Company, Detroit, Mich., has increased its capital stock from $60,000 to $175,000, and is to establish a new foundry in Owosso, Mich., 74 x 190 ft., and a two-story storage building, 62 x 173 ft. The present equipment will be moved to the new location and about the only new equipment required will be a new 60-in. Colliau cupola. The company is now employing 55 men and the number will be increased to 75 when the plant is moved to Owosso.

E. E. Linthicum, formerly general manager of the American Cast Iron Pipe Company, Birmingham, Ala., and associates contemplate the establishment of a new plant in Anniston for the manufacture of high pressure pipe, provided the citizens of that place will furnish $75,000, Mr. Linthicum agreeing to provide $50,000 of the capital. The proposition has been accepted by the Chamber of Commerce and a committee of five has been appointed to solicit subscriptions.

The Holbrook-Armstrong Company, Racine, Wis., which recently purchased the foundry building from the Herrick estate, has converted the greater part of the building into a foundry for making brass and aluminum castings by the installation of three brass furnaces and one Baltimore aluminum furnace. Part of the building will be used for making iron castings, although the main foundry department is in another section of the plant. The works has its own electric light plant, and is said to be one of the best equipped foundries in the State of Wisconsin.

The Gadsden Stove & Foundry Company, Gadsden, Ala., resumed operations July 6, after an idleness of some months.

The Anniston plant of the United States Cast Iron Pipe & Foundry Company will be put in operation in all departments July 15.

The receivers of the Atha Steel Casting Company, Newark, N. J., have been authorized by the court to continue operating the plant for 90 days, they having showed that they were running the business at a profit.

Fires.

On June 28 the plant of C. Wilson & Sons Scale Works, Toronto, Ontario, was damaged $15,000 by fire.

The plant of the Flint-Lomax Electric & Mfg. Company, Denver, Col., was recently destroyed by fire. The loss is estimated at over $50,000. The plant comprises a machine shop, assembling room and a foundry.

The factory and machine shop of the Kink & Walker Company, Madison, Wis., were burned June 27, the loss being about $10,000.

The building occupied by the W. A. Wilson Machine Company, Rochester, N. Y., was burned June 30. The loss is placed at $15,000.

Hardware.

The H. M. Myers Company plant of the Ames Shovel & Tool Company, at Beaver Falls, Pa., which was shut down for two weeks owing to a breakdown in its rolling department, started up again on Monday, July 6.

The Ireland & Matthews Mfg. Company, Detroit, Mich., is just occupying a new addition to its factory, and is installing a new 35 ton two step press for drawing large shells and tubes. The addition is 40 x 150 ft. and five stories high.

The Ingram-Richardson Enamel Company, Beaver Falls, Pa., has received an order for 16,000 automobile license plates from the State of Ohio.

The Iron and Metal Trades

The returns of the blast furnaces to *The Iron Age* show that the June output was 1,088,634 tons, as compared with 1,165,688 tons in May, the Steel works production having been 717,689 tons in June and 759,674 in May. We estimate that, including Charcoal Iron, the make of the first half of the year was 6,900,000 tons. Furnace capacity shows an increase, having been 264,452 tons on July 1, weekly, as compared with 259,284 tons on June 1.

The Pig Iron markets are quiet and steady, with comparatively few transactions of any magnitude. The absence of any reliable data on the amount of stocks is to be deplored, since it is impossible to verify some of the reports that the quantities of Iron at the furnaces, which at one time were very large, have been reduced. Partial returns are apt to be very misleading.

The opinion is expressed by at least one leading authority in the Lake Ore mining industry that if present very conservative plans for bringing down Ore during the current season are carried out there will be a decided shortage before next spring, with an accompanying upward rush of Pig Iron prices.

It is estimated that the mills now have on their books an aggregate of 650,000 tons of orders for Steel Bars for forward delivery, the bulk thereof being for the year ending July 1, 1909, for the agricultural implement makers and the vehicle builders, who anticipate a very busy season. The leading interest added about 10,000 tons to its tonnage this week and other mills took from 2000 to 3000 tons.

A little more business is coming from the railroads, who are starting a considerable number of repair shops. The tonnage, however, is small when contrasted with normal requirements. The Rail trade is particularly dull and car orders are few and far between.

Fabricators are handling a fair tonnage of small orders for construction, but the competition continues very keen. Among the orders received is about 2000 tons for the Farmers' Loan & Trust Company. At Pittsburgh bids have once more been invited for the Oliver Building, which will call for 10,000 to 12,000 tons of Structural Material.

The Tin Plate mills continue to run pretty close to capacity, but the Sheet mills are not operating at more than a 40 per cent. rate, and irregularity in prices continues.

One shop has secured orders for 6000 tons of Cast Iron Pipe for Cuban points, and there is an inquiry in the market for about 11,000 tons for Havana.

Some heavy offerings of Old Material have been made by the Pennsylvania Railroad, including 25,000 tons of Long Length Rails.

The Copper market is a little stronger, there being increased inquiry, particularly for the last quarter. The price remains 12⅝c. for Electrolytic Copper. Spelter continues weak.

A Comparison of Prices.

Advances Over the Previous Month in Heavy Type, Declines in Italics.

At date, one week, one month and one year previous.

	July 8, 1908.	July 1, 1908.	June 10, 1908.	July 10, 1907.
PIG IRON, Per Gross Ton:				
Foundry No. 2, Standard, Philadelphia	$16.50	$16.50	$16.50	$23.00
Foundry No. 2, Southern, Cincinnati	15.25	15.25	15.25	23.75
Foundry No. 2, Local, Chicago	**17.50**	17.50	17.25	25.50
Bessemer, Pittsburgh	16.90	16.90	16.90	23.90
Gray Forge, Pittsburgh	14.90	14.90	14.90	22.90
Lake Superior Charcoal, Chicago	20.00	20.00	20.00	27.00
BILLETS, &c., Per Gross Ton:				
Bessemer Billets, Pittsburgh	25.00	25.00	25.00	30.00
Forging Billets, Pittsburgh	27.00	27.00	27.00	34.00
Open Hearth Billets, Phila	26.20	26.20	26.20	32.50
Wire Rods, Pittsburgh	33.00	33.00	....	36.50
Steel Rails, Heavy, Eastern Mill	28.00	28.00	28.00	28.00
OLD MATERIAL, Per Gross Ton:				
Steel Rails, Melting, Chicago	**12.50**	12.50	12.25	18.00
Steel Rails, Melting, Phila	**13.50**	13.50	13.00	17.75
Iron Rails, Chicago	15.50	15.50	15.50	24.50
Iron Rails, Philadelphia	18.00	18.00	18.00	25.00
Car Wheels, Chicago	13.00	13.00	13.00	24.50
Car Wheels, Philadelphia	*13.50*	13.50	14.00	25.00
Heavy Steel Scrap, Pittsburgh	**14.00**	14.00	13.00	18.00
Heavy Steel Scrap, Chicago	*11.25*	11.50	11.50	16.50
Heavy Steel Scrap, Philadelphia	**13.50**	13.50	13.00	17.50
FINISHED IRON AND STEEL, Per Pound:	Cents.	Cents.	Cents.	Cents.
Refined Iron Bars, Philadelphia	*1.35*	1.35	1.40	1.83½
Common Iron Bars, Chicago	1.50	1.50	1.50	1.78
Common Iron Bars, Pittsburgh	1.40	1.40	1.40	1.70
Steel Bars, Tidewater, New York	1.56	1.56	1.56	1.86
Steel Bars, Pittsburgh	1.40	1.40	1.40	1.60
Tank Plates, Tidewater, New York	1.76	1.76	1.76	1.86
Tank Plates, Pittsburgh	1.60	1.60	1.60	1.70
Beams, Tidewater, New York	1.76	1.76	1.76	1.86
Beams, Pittsburgh	1.60	1.60	1.60	1.70
Angles, Tidewater, New York	1.76	1.76	1.76	1.86
Angles, Pittsburgh	1.60	1.60	1.60	1.70
Skelp, Grooved Steel, Pittsburgh	*1.45*	1.45	1.55	1.90
Skelp, Sheared Steel, Pittsburgh	*1.50*	1.50	1.65	1.90
SHEETS, NAILS AND WIRE, Per Pound:	Cents.	Cents.	Cents.	Cents.
Sheets, No. 27, Pittsburgh	2.40	2.40	2.40	2.50
Wire Nails, Pittsburgh	1.95	1.95	1.95	2.00
Cut Nails, Pittsburgh	*1.75*	1.75	1.80	2.05
Barb Wire, Galv., Pittsburgh	*2.40*	2.40	2.40	2.45
METALS, Per Pound:	Cents.	Cents.	Cents.	Cents.
Lake Copper, New York	*12.87½*	12.87½	13.00	22.25
Electrolytic Copper, New York	*12.62½*	12.62½	12.75	22.00
Spelter, New York	*4.45*	4.50	4.57½	6.30
Spelter, St. Louis	*4.30*	4.35	4.42½	6.12½
Lead, New York	4.50	4.50	4.50	5.30
Lead, St. Louis	4.35	4.40	4.35	5.15
Tin, New York	*28.05*	27.20	28.25	41.35
Antimony, Hallett, New York	*8.25*	8.25	8.50	10.00
Nickel, New York	45.00	45.00	45.00	45.00
Tin Plate, 100 lb., New York	$3.89	$3.89	$3.89	$4.09

Chicago.

FISHER BUILDING, July 8, 1908.—(*By Telegraph.*)

Continued improvement in nearly all lines of finished mill products, though as yet of but moderate degree, is the basis of a stronger tone throughout the market. The tonnage of Steel Bars booked since the recent price reduction has been quite satisfactory, and as soon as specifications against these contracts begin to come in liberally the rolling capacity of Steel Bar mills will be well occupied. The present activity of agricultural implement manufacturers gives promise of an early demand for shipments, and from this source and its immediate connections a steadily increasing volume of specifications may be reasonably expected. Whatever measure of improvement the situation now shows has been accomplished without much effective support from the railroads, but it is believed that necessity will compel them to increase their purchases before long. Plates, Sheets and Boiler Tubes are very quiet, and though on the whole are gaining slowly, show less advance than is observed in some other divisions of the market. Some important Structural contracts are still holding back, evidently in the hope of securing more favorable prices. Fabricators still complain of extremely low prices resulting from the scramble for the limited jobs offered. It is stated that the prices at which contracts are now being figured admit of no profit. Lack of demand from consumers has brought the Scrap Iron market pretty nearly to a standstill. Dealers are finding it more and more difficult to dispose of incoming shipments, and stock piles are already too large to admit of much increase.

Pig Iron.—The principal transaction of the week was the sale of 4900 tons to the Oliver Chilled Plow Works, South Bend, Ind. This lot was composed of 3000 tons of Standard Bessemer and 1900 tons of Foundry. It is reported that the requirements of this concern will also include 10,000 tons of Charcoal Iron. Other orders placed during the week were for small lots, and not very numerous, at that. The price situation has not changed appreciably, though it is noted that nearly all of the Southern furnaces are now squarely on a $12, Birmingham, basis, for all deliveries through the second half. No pretense of holding for $12.50 for second half or even exclusive fourth quarter deliveries, except on one or two select grades, is made by the Southern furnaces. At $12, the market is apparently firm enough, except for a possible shade of 25c. a ton on prompt shipment; but it is doubtful if there is much such tonnage available, since several inquiries have been floating around the market for several days seeking concessions, without result. Northern Iron is still held at $17.50, at furnace, which price, it is claimed, is being strictly adhered to by some producers, but $17.25 at least is being done on Valley Irons. The demand from agricultural foundries continues to increase, though very little improvement is noted in the jobbing foundries. With the beginning of July deliveries, the latter will have an ample supply of Iron to meet their requirements at the present rate of melt. The following prices are for July, August and September delivery, f.o.b. Chicago:

Lake Superior Charcoal	$20.00 to $20.50
Northern Coke Foundry, No. 1	18.00 to 18.50
Northern Coke Foundry, No. 2	17.50 to 18.00
Northern Coke Foundry, No. 3	17.00 to 17.50
Northern Scotch, No. 1	18.50 to 19.00
Southern Coke, No. 1	16.85 to 17.35
Southern Coke, No. 2	16.35 to 16.85
Southern Coke, No. 3	15.85 to 16.35
Southern Coke, No. 4	15.35 to 15.85
Southern Coke, No. 1 Soft	16.85 to 17.35
Southern Coke, No. 2 Soft	16.35 to 16.85
Southern Gray Forge	14.35 to 14.85
Southern Mottled	14.10 to 14.60
Malleable Bessemer	17.50 to 18.00
Standard Bessemer	18.40 to 18.90
Jackson Co. and Kentucky Silvery, 6 %	19.90 to 20.40
Jackson Co. and Kentucky Silvery, 8 %	20.90 to 21.40
Jackson Co. and Kentucky Silvery, 10 %	22.90 to 23.40

(By Mail.)

Billets and Rods.—Only a few small orders for Forging Billets comprising the incidental requirements of shops are being entered, and no further inquiries have developed for lots of considerable tonnage. Prices are unchanged, and are reported to be firmly held at $28.50, base, Chicago, for Forging Billets. There is a fair demand for Wire Rods, which we quote as follows: Bessemer, $33; Basic, $34; all at Pittsburgh.

Rails and Track Supplies.—Practically nothing is doing in Standard Section Rails, and no large addition to the tonnage for 1908 delivery already booked is probable. The intervening period of inactivity until the entry of new contracts is begun will likely be broken only by unimportant orders placed by the smaller roads. Specifications for Track Supplies are slowly improving, with prospects of further betterment. The market for Light Rails is practically an open one, it being necessary for all makers to meet the quotations of rerolling mills, which are all the way from $3 to $5 a ton below the nominal quotations. We quote as follows: Angle Bars, accompanying Rail orders, 1908 delivery, 1.50c.; car lots, 1.60c.; Spikes, 1.80c. to 1.90c., according to delivery; Track Bolts, 2.20c. to 2.25c., base, Square Nuts, and 2.35c. to 2.40c., base, Hexagonal Nuts. The store prices on Track Supplies range from 0.15c. to 0.20c. above mill prices. Light Rails, 25 to 45 lb., $28; 20-lb., $29; 16-lb., $30; 12-lb., $31. Standard Sections, $28, f.o.b. mill, full freight to destination.

Structural Material.—The volume of business taken by fabricating shops in the past week, though not at all satisfactory, shows a gain over recent weeks. Among the contracts closed by the American Bridge Company were 605 tons for a viaduct at El Paso; 365 tons from the American Smelting & Refining Company, McGill, Nev.; 100 tons for a trestle to be built at Twin Falls, Idaho, by the Twin Falls Land & Water Company, and several highway bridges of small tonnage. The Richards Noelke Company, Indianapolis, was awarded a contract by the Western Electric Company for 1225 tons, to be used in the construction of new plant additions at the Hawthorne Works. The Hansell-Elcock Company was the successful bidder on 500 tons for a stock pavilion at Denver. The Chicago & Northwestern Railway is taking bids on 2000 tons of material for track elevation work in connection with approaches to the site of the new depot. A slight increase in Structural specifications at the mills is noted, though it is not marked enough to be especially emphasized. Prices from store are 1.95c. to 2c. Mill prices at Chicago are as follows: Beams and Channels, 3 to 15 in., inclusive, 1.78c.; Angles, 3 to 6 in., ¼-in. and heavier, 1.78c.; larger than 6 in. on one or both legs, 1.88c.; Beams, larger than 6 in. on one or both legs, 1.88c.; Beams, larger than 15 in., 1.88c.; Zees, 3 in. and over, 1.78c.; Tees, 3 in. and over, 1.83c., in addition to the usual extras.

Plates.—Slow improvement is noted in Plate specifications, but orders continue to be for small lots that are evidently required for immediate consumption. These, it seems, are growing a little more frequent, and in so far as they represent increased consumption such signs are encouraging; but it is noted that they are not coming from the heavy Plate users, the demand being more of an incidental nature. The Sheared Plate mill at the South Works, which started up a week ago, had specifications on hand at that time for only a few days' run, but enough have been received in the meantime to insure its continued operation through the present week at least. Prices continue firm and regular, except for a shade of about $1.50, which continues to be offered by some of the size limited mills. We quote mill shipments, as follows: Tank Plates, ¼-in. and heavier, wider than 6¼ and up to 100 in. wide, inclusive, car lots, Chicago, 1.78c.; 3-16 in., 1.88c.; Nos. 7 and 8 gauge, 1.93c.; No. 9, 2.03c.; Flange quality, in widths up to 100 in., 1.88c., base, for ¼-in. and heavier, with the same advance for lighter weights; Sketch Plates, Tank quality, 1.88c.; Flange quality, 1.98c. Store prices on Plates are as follows: Tank Plates, ¼-in. and heavier up to 72-in. wide, 2c. to 2.10c.; from 72 to 96 in. wide, 2.10c. to 2.20c.; 3-16 in. up to 60 in. wide, 2.10c. to 2.25c.; 72 in. wide, 2.30c. to 2.40c.; No. 8, up to 60 in. wide, 2.10c. to 2.15c.; Flange and Head quality, 0.25c. extra.

Sheets.—Beyond a very moderate run of small orders to supply actual present needs there are no developments of interest in the Sheet market. This is admittedly the dull season for Sheets, but with the due allowance for this condition the demand is of quite unsatisfactory proportions. Neither manufacturers nor jobbers are increasing their stocks which, on all hands, are as low as it is practicable to run them. Prices are in the main well maintained, though it is reported a few mills are receding to the extent of $1 a ton from the regular schedule. We quote mill shipments as follows: Chicago: Blue Annealed, No. 10, 1.98c.; No. 12, 2.05c.; No. 14, 2.08c.; No. 16, 2.18c.; Box Annealed, Nos. 17 to 21, 2.43c.; Nos. 22 to 24, 2.48c.; Nos. 25 and 26, 2.53c.; No. 27, 2.58c.; No. 28, 2.68c.; No. 29, 2.78c.; No. 30, 2.88c.; Galvanized Sheets, Nos. 10 to 14, 2.63c.; Nos. 15 and 16, 2.83c.; Nos. 17 to 21, 2.98c.; Nos. 22 to 24, 3.13c.; Nos. 25 and 26, 3.33c.; No. 27, 3.53c.; No. 28, 3.73c.; No. 30, 4.23c.; Black Sheets from store: Blue Annealed, No. 10, 2.20c.; No. 12, 2.25c.; No. 14, 2.30c.; No. 16, 2.40c.; Box Annealed, Nos. 18 to 21, 2.60c.; Nos. 22 to 24, 2.65c.; No. 26, 2.70c.; No. 27, 2.75c.; No. 28, 2.85c.; No. 30, 3.25c.; Galvanized from store: Nos. 10 to 16, 3c.; Nos. 18 to 20, 3.15c.; Nos. 22 to 24, 3.30c.; No. 26, 3.50c.; No. 27, 3.70c.; No. 28, 3.90c.; No. 30, 4.40c. to 4.45c.

Bars.—Some additional orders for Steel Bars have been placed by the implement makers during the week, of which the leading interest has entered about 10,000 tons, while other makers have booked between 2000 and 3000 tons. Specifications for Steel Bars continue to improve, though few of these are as yet being furnished against the new contracts. Owing to the activity in the implement trade and the flattering prospects back of it, steady improvement in Steel Bar specifications is looked for. If present indications hold good, Bar mill rolling schedules ought to be fairly well filled by August 1. Mills of the Republic Iron & Steel Company and those of the Inland Steel Company are closed down, and will probably not resume before August 1. We are advised that prices on both Iron and Steel Bars are being firmly held. Quotations, Chicago, are as follows: Steel Bars, 1.58c., with half extras: Iron Bars, 1.50c.; Hoops, No. 13 and lighter, 1.98c., full extra Hoop card; Bands, No. 12 gauge and heavier, 1.58c., half extra Steel Bar card; Soft Steel Angles and Shapes, 1.68c., half extras. Store prices are as follows: Bar Iron, 2c. to 2.15c.; Steel Bars, 1.90c. to 2c.; Steel Bands, 1.90c., as per Bar card, half extras; Soft Steel Hoops, 2.25c. to 2.35c., full extras.

Merchant Pipe.—While the margin of gain is small, the mills continue to report some improvement each week. It is apparent, however, that buyers have not changed their attitude respecting the manner of supplying requirements, and are still ordering to cover needs as they arise. Whatever increase there is under such circumstances naturally reflects an increase in consumption, which is a healthy market symptom. There is no change either in the level or regularity of prices. The following mill discounts are quoted: Black Pipe, ¾ to 6 in., 73.2; 7 to 12 in., 70.2; Galvanized, ¾ to 6 in., 63.2. These discounts are subject to one point on the base. From store, in small lots, Chicago jobbers quote 73 per cent. on Black Steel Pipe, ¾ to 6 in. About three points above these prices is asked for Iron Pipe.

Boiler Tubes.—The eyes of the trade are turned toward the railroads as a probable source from which Tube orders may soon be expected, but as yet these hopes have not been realized. The movement of Merchant Tubes is, of course, dependent upon activity in boiler shops, which thus far shows no definite improvement. Mill quotations for future delivery, on the base sizes, are as follows: Steel Tubes, 63.2; Iron, 50.2; Seamless, 49.2; 2½ in. and smaller, and lengths

over 18 ft., and 2½ in. and larger, and lengths over 22 ft., 10 per cent. extra. Store prices are as follows:

	Steel.	Iron.	Seamless.
1 to 1½ in.	35	35	35
1¾ to 2¼ in.	50	35	35
2½ in.	52½	35	35
2¾ to 5 in.	60	47½	47½
6 in. and larger	50	35	..

Merchant Steel.—While a fair amount of contract orders from implement makers has been entered during the week, specifications are light. Jobbers are reported to be ordering a little more freely, but the situation as a whole has not materially changed. Quotations are as follows: Planished or Smooth Finished Tire Steel, 1.78c.; Iron Finish up to 1½ x ½ in., 1.73c., base, Steel card; Iron Finish, 1½ x ½ in. and larger, 1.58c., base, Tire card; Channels for solid Rubber Tires, ¾ to 1 in., 2.08c., and 1⅛ in. and larger, 1.98c.; Smooth Finished Machinery Steel, 2.08c.; Flat Sleigh Shoe, 1.63c.; Concave and Convex Sleigh Shoe, 1.83c.; Cutter Shoe, 2.05c.; Toe Calk Steel, 2.13c.; Railroad Spring, 1.98c.; Crucible Tool Steel, 7¼c. to 8c., and still higher prices are asked on special grades. Shafting, 56 per cent. off in car lots; 52 per cent. in less than car lots, base territory delivery.

Cast Iron Pipe.—A lot of 3000 tons required for a water works system by the city of Sheridan, Wyo., on which bids were taken a few weeks ago, but no award made, is again up for offers. Other lettings to be held in the near future include 500 tons for Wahoo, Neb.; 300 tons for Concordia, Kan., and 200 tons for Batavia, Ill. Of the business placed last week the United States Cast Iron Pipe & Foundry Company secured 3500 tons from Cleveland, Ohio. We quote, nominally, per net ton, Chicago, as follows: Water Pipe, 4-in., $27; 6 to 12 in., $26; 16-in. and up, $25; with $1 extra for Gas Pipe.

Old Material.—The demand for Scrap of all grades is extremely quiet. The amount of tonnage moved last week was small even in comparison with the very moderate business that has constituted the volume of transactions for several weeks. Dealers' stocks, which have been steadily accumulating for some time, are now unusually large, and the demand is insufficient to reduce them. It is noticed also that country dealers are growing more and more anxious to lessen their stockpiles, but in the present state of the market this cannot be accomplished without a sacrifice in values, which they are as yet unwilling to make. The fact that prices have receded but little from last week's quotations is largely due to the absence of tempting offers rather than any inherent strength in the list. There is an increasingly wide range of difference between the prices asked and the prices offered, and until buyers are harder pressed for material than they are at present the advantage seems to be with them. The only list so far reported for disposal this week is that of the Baltimore & Ohio Railroad, which includes 7000 tons, in which there are 2000 tons of Steel Rails and 600 tons of Wrought Iron bridge Scrap. We quote per gross ton, f.o.b. Chicago, as follows:

Old Iron Rails	$15.50 to $16.00
Old Steel Rails, rerolling	14.00 to 14.50
Old Steel Rails, less than 3 ft.	12.50 to 13.00
Relaying Rails, standard sections, subject to inspection	19.00 to 20.00
Old Car Wheels	13.00 to 13.50
Heavy Melting Steel Scrap	11.25 to 11.75
Frogs, Switches and Guards, cut apart	12.00 to 12.50
Mixed Steel	9.50 to 10.00

The following quotations are per net ton:

Iron Fish Plates	$14.25 to $14.75
Iron Car Axles	16.50 to 17.00
Steel Car Axles	15.25 to 15.75
No. 1 Railroad Wrought	12.00 to 12.50
No. 2 Railroad Wrought	11.00 to 11.50
Railway Springs	11.50 to 12.00
Locomotive Tires, smooth	12.75 to 13.25
No. 1 Dealers' Forge	9.50 to 10.00
Mixed Busheling	7.00 to 7.50
Iron Axle Turnings	6.00 to 6.50
Soft Steel Axle Turnings	6.00 to 6.50
Machine Shop Turnings	6.00 to 6.50
Cast Borings	4.75 to 5.25
Mixed Borings, &c.	4.75 to 5.25
No. 1 Mill	6.50 to 7.00
No. 2 Mill	5.50 to 6.00
No. 1 Boilers, cut to Sheets and Rings	8.25 to 8.75
No. 1 Cast Scrap	12.00 to 12.50
Stove Plate and Light Cast Scrap	10.25 to 10.75
Railroad Malleable	11.00 to 11.50
Agricultural Malleable	10.00 to 10.50
Pipes and Flues	8.00 to 8.50

Metals.—There is perhaps a little stronger tone in the market, but it is not based on any evidence of permanent improvement in demand. Here and there manufacturers are somewhat busier, and in such cases metal purchases keep pace with requirements, but do not go beyond them. With the exception of Lead and Spelter, which are weaker, prices hold fairly even and unchanged. We quote as follows: Casting Copper, 13¼c.; Lake, 13½c. to 13⅝c., in car lots for prompt shipment; small lots, ¼c. to ⅜c. higher; Pig Tin, car lots, 30c.; small lots, 32½c.; Lead, Desilverized, 4.50c. to 4.55c., for 50-ton lots; Corroding, 4.85c. to 4.95c., for 50-ton lots; in car lots, 2¼c. per 100 lb. higher; Spelter, 4.85c.; Cookson's Antimony, 10½c., and other grades, 9¾c. to 10¼c.; Sheet Zinc is $7, list, f.o.b. La Salle, in car lots of 600-lb. casks. On Old Metals we quote: Copper Wire, 12¾c.; Heavy Copper, 12¾c.; Copper Bottoms, 10⅝c.; Copper Clips, 11c.; Red Brass, 11½c.; Yellow Brass, 9¼c.; Light Brass, 6½c.; Lead Pipe, 4c.; Zinc, 3¾c.; Pewter, No. 1, 21c.; Tin Foil, 24c.; Block Tin Pipe, 27c.

Pittsburgh.

PARK BUILDING, July 8, 1908.—(*By Telegraph.*)

Pig Iron.—While the Pig Iron market continues quiet there is more inquiry, some consumers asking prices on considerable tonnage for balance of the year delivery. More Pig Iron is now being made in the Pittsburgh District than for some time, and this week the Carnegie Steel Company has started up two more blast furnaces. The Midland Steel Company will start up its furnace in the latter part of this month or early in August. We quote Sand Cast Bessemer at $16, Valley furnace, but note a sale of 200 tons at $15.75, and another of 50 tons at the same price. Basic is $15 to $15.25, and we note a sale of 3000 tons equal deliveries August, September, and October at $15.25, Valley furnace. We quote Malleable Bessemer at $15 to $15.25, and note a sale of 1000 tons at $15, Valley furnace. We quote Northern No. 2 Foundry at $14.75 to $15, Valley furnace, and note that a local consumer is in the market for about 1000 tons for early delivery. Northern Forge Iron is very quiet, and we quote the market at $14, Valley furnace, or $14.90, Pittsburgh.

Steel.—Little new business is offering in Billets, but a fair amount of tonnage is being specified for against contracts for Sheet and Tin Bars. Some conversion deals in Billets and Slabs are still being made by which Basic Iron is shipped to outside Steel mills and made into Billets and Slabs which are furnished to consumers at slightly less than regular prices. We are advised that official prices on Sheet and Tin Bars are being absolutely maintained. We quote Bessemer and Open Hearth Billets, 3⅜ in. and larger, up to and including 0.25 carbon, $25; 0.26 to 0.60 carbon, $1 extra; over 0.60 carbon, $2 extra, all f.o.b. Pittsburgh. For Wheeling, Martins Ferry, Follansbee, Newcastle, Sharon, Steubenville and Washington (Pa.) delivery, half the freight or 50c. additional is charged. Sheet and Tin Bars in random lengths are $27, f.o.b. Pittsburgh. Forging Billets take $2 advance over Rolling Billets.

(*By Mail.*)

The month of June, compared with May and previous months, showed a large increase in mill business, both in new orders booked and in specifications. Most of this, however, was in Steel Bars, June being a record breaker in this respect. New orders and specifications of the Carnegie Steel Company in June were very much the largest in any one month since last October, and other large Steel interests report that the buying movement is steadily getting better. The feeling is more optimistic than for some time, and it is now confidently believed the long expected turn in the Steel trade has come and that conditions will steadily improve. Consumers are becoming more convinced that there will not be another reduction in prices and are buying more freely. A large number of finishing mills are idle, taking inventory and making repairs, and also awaiting adjustment of the wage scales of the Amalgamated Association.

Ferromanganese.—No sales of moment have been made in this market for some little time, and inquiries are light. We quote 80 per cent. foreign Ferro at $44, seaboard, for third quarter, and about $45, for fourth quarter, the freight rate to Pittsburgh being $1.95 a ton.

Rods.—Business is dull. We quote Bessemer Rods at $33; Basic Rods, $34, and Chain Rods, $33, f.o.b. Pittsburgh.

Ferrosilicon.—The market is quiet, but prices are steady. We quote 50 per cent. at $70, Pittsburgh.

Muck Bar.—With no sales we continue to quote nominally for best grades, made from all Pig Iron, $26, Pittsburgh.

Skelp.—A sale of about 1000 tons of Grooved Iron Skelp is reported by a local mill on the basis of about 1.57½c., Pittsburgh. Prices, however, are largely nominal, and we quote: Grooved Steel Skelp, 1.45c. to 1.50c.; Sheared Steel Skelp, 1.50c. to 1.60c.; Grooved Iron Skelp, 1.60c. to 1.70c., and Sheared Iron Skelp, 1.70c. to 1.75c., f.o.b. Pittsburgh.

Steel Rails.—During June the Carnegie Steel Company entered orders for about 9000 tons of Light Rails, which is only about 20 per cent. below normal business and a very good record considering present conditions. Last week the company entered orders for about 1100 tons of Light Rails, but as yet no contracts of moment for Standard Sections are being placed. Some tonnage is coming in steadily, but it is made up of small orders. Regular quotations on Light Rails, which are shaded $4 to $5 a ton to meet competition of mills that reroll Rails, are as follows: 25 to 45 lb. Sections, $28; 20-lb., $29; 16-lb., $30, and 12-lb., $32. We quote Standard Sections at $28, at mill, and Angle Splice Bars at 1.65c., at mill.

Plates.—While orders are a little more numerous, they are still confined to small lots, to meet current needs of cus-

tomers. The car shops, shipyards, and boiler and tank shaps are still very short of work, and until their conditions improve not much betterment in Plates can be expected. The Carnegie Steel Company operated its Plate mills at the Homestead Works to fuller capacity in June than at any time since last October, a large part of the tonnage turned out going to an identified interest to be made into Pipe for the Standard Oil Company. A few mills, that do not make a full range of sizes, are still shading prices from $1 to $1.50 a ton. We quote Tank Plates, ¾-in. thick, 6¼ in. up to 100 in. wide, 1.60c., base, at mills, Pittsburgh. Extras over this price are as follows:

Tank, Ship and Bridge quality, ¼ in. thick on edges, 100 in. wide, down to but not including 6 in. wide, is taken as base.
Steel Plates up to 72 in. wide, inclusive, ordered 10.2 lb. per square foot, shall be considered ¼-in. Plate. Steel Plates over 72 in. wide must be ordered ¼-in. thick on edge, or not less than 11 lb. per square foot to take base price. Steel Plates over 72 in. wide ordered less than 11 lb. per square foot down to the weight of 3-16-in. shall take the price of 3-16-in.
Percentages as to overweight on Plates, whether ordered to gauge or weight, to be governed by the Association of American Steel Manufacturers' Standard Specifications.

Gauges under ¼-in. to and including 3 16-in. Plates on thin edges	$0.10
Gauges under 3-16-in. to and including No. 8	.15
Gauges under No. 8 to and including No. 9	.25
All sketches (excepting straight taper Plates varying not more than 4 in. in width at ends, narrowest end being not less than 30 in.)	.10
Complete Circles	.20
Boiler and Flange Steel Plates	.10
"A. B. M. A." and ordinary Firebox Steel Plates	.20
Still Bottom Steel	.30
Marine Steel	.40
Locomotive Firebox Steel	.50
Shell grade of Steel is abandoned.	
For widths over 100 in. up to 110 in	.05
For widths over 110 in. up to 115 in	.10
For widths over 115 in. up to 120 in	.15
For widths over 120 in. up to 125 in	.25
For widths over 125 in. up to 130 in	.50
For widths over 130 in	1.00

TERMS.—Net cash 30 days. Pacific Coast base, 1.50c., f.o.b. Pittsburgh.

Structural Material.—The feeling is decidedly better and quite a good deal of work is in sight. The McClintic-Marshall Construction Company has taken a 250-ft. arch span for the city of Philadelphia, 500 tons; some ore bins and trestles for the Columbus Iron & Steel Company, 500 tons; and a viaduct for the Pittsburgh Railways Company at Rankin, 200 tons. The School of Mines Building for the New Western University in this city, 430 tons, is likely to be placed this week. A large tonnage will be required for different buildings for this institution, but they will probably be placed one or two at a time. Prices for fabricated work are still very low, but it is believed that bottom has been reached and that there will soon be an improvement in this direction. The proposed Oliver Building on Smithfield street has again come up, and bids for the Steel, 10,000 to 12,000 tons, have again been asked for, and it is believed that this time the contract will be placed. We quote as follows, f.o.b. mill, Pittsburgh: I Beams, H Beams and Channels, 3 to 15 in. inclusive, 1.60c. net; Beams over 15 in., 1.70c. net; Angles, 3 to 6 in. inclusive, ¼ in. and up, 1.60c. net; Angles, over 6 in., 1.70c. net; Angles 3 x 3 in. and up, less than ¼ in., 1.50c., base, half extras, Steel Bar card; Tees, 3 in. and up, 1.65c. net; Zees, 3 in. and up, 1.60c. net; Angles, Channels and Tees under 3 in., 1.50c. base, half extras, Steel Bar card; Deck Beams and Bulb Angles, 1.90c. net; Hand Rail Tees and Z-19, 3c. net; Checkered and Corrugated Plates, 3c. net.

Sheets.—No disposition is shown by jobbers to buy ahead, stocks being kept as low as possible. Two or three of the smaller mills are reported as shading prices about $1 a ton, but in a general way the market is fairly strong. Regular prices for mill shipments are as follows: Blue Annealed Sheets, No. 10 and heavier, 1.80c.; Nos. 11 and 12, 1.85c.; Nos. 13 and 14, 1.90c.; Nos. 15 and 16, 2c.; Box Annealed, Nos. 17 to 21, 2.25c.; Nos. 22 to 24, 2.30c.; Nos. 25 and 26, 2.35c.; No. 27, 2.40c.; No. 28, 2.50c.; No. 29, 2.60c.; No. 30, 2.70c. Galvanized Sheets: Nos. 10 and 11, 2.45c.; Nos. 12 and 14, 2.55c.; Nos. 15 and 16, 2.65c.; Nos. 17 to 21, 2.80c.; Nos. 22 and 24, 2.95c.; Nos. 25 and 26, 3.15c.; No. 27, 3.35c.; No. 28, 3.55c.; No. 29, 3.70c.; No. 30, 3.95c. No. 28 Painted Roofing Sheets, $1.75 per square, and Galvanized Roofing Sheets, No. 28, $3.10 per square, for 2½-in. corrugations. These prices are subject to a rebate of 5c. per 100 lb. to the large trade under the usual conditions, jobbers charging the usual advances for small lots from store.

Tin Plate.—Little suspension of work will take place among the Tin Plate mills, as the American Sheet & Tin Plate Company has signed the scale for its union mills for the year beginning July 1. The Pope Tin Plate Company, the largest independent producer, has also signed the scale, as have the smaller union mills. The largest nonunion mills, outside the American Sheet & Tin Plate Company, are the McKeesport Tin Plate Company and the Phillips Sheet & Tin Plate Company, at Clarksburg, W. Va. The canners are commencing to specify against contracts placed some time ago, and shipments by the Tin Plate mills are now quite heavy. We quote at $3.70 for 100-lb. Cokes, 14 x 20, f.o.b. Pittsburgh, terms 30 days, less 2 per cent. off for cash in 10 days, this price being subject to the usual rebate of 5c. per base box in large lots.

Hoops and Bands.—Practically no new orders are being placed, but specifications against contracts are coming in at a fairly satisfactory rate. Regular prices are as follows: Steel Hoops, 1.80c., base, full Hoop card prices; Steel Bands, 1.40c., base, half Steel card extra, all f.o.b. cars, Pittsburgh, in carload lots, for delivery during 1908.

Iron and Steel Bars.—With orders on their books for fully 650,000 tons of Steel Bars for delivery over the next year, the Steel Bar mills are in more comfortable position than they have been in a long time. At present, most of the Bar mills, aside from the Carnegie, Jones & Laughlin and other companies that do not sign the Amalgamated scale, are idle, waiting adjustment of the wage scale for the year beginning July 1. We quote Iron Bars at 1.40c., base, for Pittsburgh delivery, and 1.35c., base, for Western points, to which freight is added, except Chicago, the price for which is 1.50c, delivered. We quote Steel Bars at 1.40c., Pittsburgh, for base sizes.

Merchant Steel.—The Crucible Steel Company and the Cambria Steel Company have received some good-sized contracts from implement makers, but as yet specifications against these contracts have not commenced to come out in large volume. Generally speaking, the trade in Merchant Steels is showing some betterment, with the single exception of Shafting, which is still dull. We quote: Cold Rolled Shafting, on contracts for 100 tons and over, 57 per cent. off; carloads, 56 per cent. off, and less than carloads, 52 per cent. off, on which carload freight is allowed within base territory. Smooth Finished Machinery Steel, 1.80c. to 1.90c.; Flat Sleigh Shoe, 1.75c. to 1.85c.; Cutter Shoe Steel, 2.15c. to 2.25c.; Toe Calk, 1.90c. to 1.95c.; Railroad Spring Steel, 1.60c. to 1.75c., the higher price being for Pennsylvania Railroad analysis. Carriage Spring Steel is 1.80c.; Tire Steel, Iron, finished, 1½ in. and wider, 1.40c.; under 1½ in., 1.55c. Planished Tire Steel is 1.60c., all f.o.b., at mill.

Railroad Spikes.—Practically no new orders for Railroad Spikes have been placed, but there is a fair demand for the smaller sizes. The trade in Railroad Spikes this year has shown an enormous falling off, as compared with the same period last year, and prospects for last half are not bright. We quote: Standard sizes, 4½ x 9-16 in., at $1.70, and the smaller sizes at $1.80 per 100 lb. in carload and larger lots, with an advance of 5c. per 100 lb. for less than carload, f.o.b. Pittsburgh.

Spelter.—Prices have again declined, and reports are that prime Western grades in large lots have been offered below 4.30c., St. Louis. The demand is light, and it is understood that smelters are taking steps to cut down the output materially.

Merchant Pipe.—Conditions in this trade are showing gradual betterment, and it is estimated that 55 per cent. of the Pipe capacity is active. The Standard Oil Company has been a heavy buyer of 6-in. Line Pipe, and two or three large jobs in oil and gas lines for Indiana, Illinois and Texas are on the carpet and may come up actively before long. Prices are firm, and jobbers are reported to be buying more freely than for some time. Discounts on Steel Pipe, ¾ to 6 in., to the large trade are now 76 and 5 per cent. off list. Regular discounts are as follows:

Merchant Pipe.

	Jobbers, carloads, Steel. Black.	Galv.
	%	%
⅛ to ¼ in.	67	51
⅜ in.	69	55
½ in.	71	59
¾ to 6 in.	75	65
7 to 12 in.	72	57
Extra strong, plain ends:		
⅛ to ¾ in.	60	48
⅛ to 4 in.	67	55
4½ to 8 in.	63	51
Double extra strong, plain ends:		
½ to 8 in.	56	45

Discounts on Genuine Iron Pipe are as follows:

	Black.	Galv.
	%	%
⅛ to ¼ in.	65	..
⅜ in.	67	53
½ in.	69	57
¾ to 6 in.	73	63
7 to 12 in.	70	55
Extra strong, plain ends:		
⅛ to ⅜ in.	58	46
⅛ to 4 in.	65	53
4½ to 8 in.	61	49
Double extra strong, plain ends:		
½ to 8 in.	54	43

Boiler Tubes.—For the first time in some weeks we can report a little better inquiry for Locomotive Tubes, and this is taken as an indication that the railroads will be more liberal buyers in the near future. Regular discounts on Merchant Tubes in small lots, on which an extra 5 per cent.

is allowed in carloads, but which discounts are being shaded, are as follows:

Boiler Tubes.

	Iron.	Steel.
1 to 1½ in.	42	47
1¾ to 2¼ in.	42	59
2½ in.	47	61
2¾ to 5 in.	52	65
6 to 13 in.	42	59

2½ in. and smaller, over 18 ft. long, 10 per cent. net extra.
2¾ in. and larger, over 22 ft. long, 10 per cent. net extra.

Iron and Steel Scrap.—Conditions in the Scrap trade are showing some betterment, inquiries being more plentiful, and the amount of actual tonnage sold being larger than for some time. The Pennsylvania Railroad sold a heavy quantity of Scrap to dealers last week, the prices obtained being better than for some months. We quote, per gross ton, f.o.b. Pittsburgh: Heavy Steel Scrap, for Pittsburgh, Steubenville and Sharon delivery, $14; Cast Iron Borings, $8 to $8.25; No. 1 Railroad Wrought Scrap, $13.75 to $14; No. 1 Cast Scrap, $14 to $14.25; Bundled Sheet Scrap, $10.75 to $11.25; Sheet Bar Crop Ends, $17.25 to $17.50; No. 1 Busheling Scrap, $12.75 to $13; No. 2 Busheling Scrap, $8.75 to $9; Iron Axles, $19.50 to $20; Steel Axles, $17.50 to $18; Low Phosphorus Melting Stock, 0.04 and under, $18 to $18.50; Old Steel Rails, short pieces, $14; Rerolling Rails, $14.50 to $15; Machine Shop Turnings, $8.50 to $8.75; Grate Bars, $12.25 to $12.50; Railroad Malleable Scrap, $13 to $13.50. We note sales of 200 tons of Cast Iron Borings at about $8.25, and 200 tons of Machine Shop Turnings at about $8.50, f.o.b. Pittsburgh.

Coke.—As yet there is not much improvement in the demand for either Furnace or Foundry Coke, the trade not brightening up as much as anticipated. Several Valley furnaces are getting ready to go into blast, and when these are started it will mean a heavier demand for Furnace Coke. The Frick Coke Company is operating its ovens five days a week and 8 hr. a day, and the larger independent operators are running to about the same capacity. The output of Coke in the Upper and Lower Connellsville regions last week was 164,839 tons, an increase over the previous week of only 2000 tons. Furnace Coke for prompt shipment continues to be quoted at $1.60 for best grades, and 72-hr. Foundry at $2 to $2.25, at oven. On contracts for Furnace Coke for shipment over last half of the year, $1.80 to $1.89, at oven, is quoted.

I. W. Wilkoff has been appointed sales manager for the Wilkoff Brothers Company, dealer in Iron and Steel Scrap, Farmers' Bank Building, Pittsburgh, succeeding H. D. Stalnaker, resigned.

St. Louis.

ST. LOUIS, MO., July 5, 1908.

An encouraging feature respecting the business situation in this district is found in increased activity in the line of railroad supplies, mainly in the direction of repairs to cars and engines. Four leading railroads here recently started up their shops, and local concerns report a moderate but steady gain in orders from purchasing agents. The demand for Bars from manufacturers of agricultural implements is falling off, as buyers in this line have supplied their wants. An improved demand is noted for Sheets, and for Tin Plate there is a continued inquiry. For Spelter the demand rules mainly for galvanizing purposes. Clearing house returns for June show a falling off of but 6 per cent., while the post office receipts gained over the same month last year.

Coke.—The market for Coke is quiet, but steady. A leading local house reports the sale of quite a large tonnage, the contract covering a period of one year from July 1, to one of the Car Wheel companies of St. Louis. Another local agency has been instructed by one of its producers to hold price at $2.35, at oven, which is regarded as practically withdrawing from the market. We quote $2.15 to $2.50 for 72-hr. Coke, at oven, Connellsville, the lower price for quick shipment and the higher price for contract, 6 to 12 months delivery.

Pig Iron.—The market for Pig Iron is slower, but prices are maintained. A local house finds that its specifications on contract during June exceeded its sales, which clears the way for new business from their customers. As July is not an active month, though the melt of Iron has increased, sellers look for business mainly for forward deliveries, and being in receipt of numerous inquiries the feeling is confident. We quote $12 to $12.50, Birmingham, for No. 2 Foundry, according to delivery, though we hear of $13 being asked for fourth quarter.

Finished Iron and Steel.—The demand for Structural Steel is characterized by numerous sales of small lots, which, however, in the aggregate reach a satisfactory tonnage. Conditions are improving in respect to the inquiry for Steel Bars. In Standard Rails there is very little doing, with some business in Light Rails. For Track Material, mainly repair work, there is a gratifying increase in inquiry and orders received carry requests for immediate shipment. From jobbers orders indicate replenishing stocks, without much disposition for anticipating wants. The improvement in the demand for Bars and small Shapes is coming from car works. Harvester work has followed a Northern and Western course in closing up buying. In Tubing and Plates the demand represents about 50 per cent. of last year.

Lead and Spelter.—The demand for Lead and Spelter is slower and prices have declined in spite of the fact that they were already too low for Ore cost. Production is about one-half of capacity. For either metal 4.35c. is bid.

Old Material.—The market continues to rule quiet and the limited transactions are principally confined to dealers. No lists of importance are out. The holiday feature is thought to have made the dullness more pronounced, and greater activity is looked for in the coming week. We quote nominally dealers' prices as follows, f.o.b. St. Louis, per gross ton:

Old Iron Rails	$14.00 to $14.50
Old Steel Rails, rerolling	12.75 to 13.00
Old Steel Rails, less than 3 ft.	12.50 to 13.00
Relaying Rails	22.50 to 23.50
Old Car Wheels	12.50 to 13.50
Heavy Melting Steel Scrap	12.25 to 12.75
Frogs, Switches and Guards, cut apart	12.00 to 12.50
Mixed Steel	9.00 to 9.50

The following quotations are per net ton:

Iron Fish Plates	$11.50 to $12.00
Iron Car Axles	15.00 to 15.50
No. 1 Railroad Wrought	11.75 to 12.00
No. 2 Railroad Wrought	9.50 to 11.00
Railway Springs	9.50 to 10.50
Locomotive Tires, smooth	12.00 to 12.50
No. 1 Dealers' Forge	9.50 to 10.00
Mixed Borings	3.50 to 3.75
No. 1 Boilers, cut to Sheets and Rings	7.00 to 8.00
No. 1 Cast Scrap	11.00 to 11.50
Stove Plate and Light Cast Scrap	9.00 to 9.50
Railroad Malleable	9.25 to 9.75
Agricultural Malleable	8.50 to 9.00
Pipes and Flues	7.25 to 7.50

The Natural Power Company, manufacturer of air compressors, has increased its capital stock from 60,000 to $300,000, fully paid up.

The Scullin-Gallagher Iron & Steel Company has just closed a contract for Cast Steel bolsters for 500 box cars with the International & Great Northern Railroad, and another for cast Steel Bolsters for 300 Coal cars with the Delaware, Lackawanna & Western Railroad.

The resumption of work at the machine shops of the Missouri, Kansas & Texas Railway Company at Parsons, Kan.; the Frisco at Springfield, Mo., and the Santa Fé system at Topeka, Kan., will furnish employment for 3800 men.

Bids for the erection of the $1,000,000 Central Library Building must be in the hands of the Library Board August 18, and copies of the plans and specifications will be given out to-day.

Birmingham.

BIRMINGHAM, ALA., July 6, 1908.

Pig Iron.—The market is firm, with the aggregate of sales similar to reports for some weeks previous. A schedule of $12, Birmingham, is being adhered to for prompt deliveries and the third quarter without evidence of a disposition to shade quotations. For delivery during the last quarter $12.50, Birmingham, for No. 2 Foundry is being asked, and while the tonnage engaged at this price is comparatively small, all parties concerned appear to be satisfied. Recent requests for quotations on tonnage to be delivered during the last quarter of this year and first quarter of next have not had serious consideration, and as a result nominal quotations only have been made. Practically all lines of foundry trades have gradually improved. In the case of Pipe manufacturers the volume of business recently developed is considered equal to the entire production for some months, but melters generally are chary of negotiations for requirements further advanced than previously provided for, notwithstanding the fact that producers are not solicitous of such engagements. Some cases are reported where shipment against contract has been deferred by request of purchasers, and in other instances the material purchased is being stocked on foundry yards, yet the aggregate of tonnage being moved indicates that actual requirements exceed anticipations. There has been no accumulation of stock on furnace yards, and official announcement is made that at least two additional stacks will be in operation by August 1. The scarcity of off grades has been relieved to some extent, although quotations have not been affected. A lot of 100 tons Gray Forge is reported sold during the week at $10.50, Birmingham. The output of merchantable Basic Iron is to be increased to fill an order requiring the operation of one stack during the remainder of the year.

Cast Iron Pipe.—With the business actually in sight reaching such proportions as to warrant a material increase in the rate of production, and prices apparently on a firm basis, the condition of the market is very encouraging. Recent developments relative to the proposed expenditure for the city of San Francisco are expected to result in orders

practically equal to the output of all Southern plants for many months. Indications are favorable for an order covering something like 11,000 tons of Water Pipe for Havana, Cuba, in addition to tonnage recently placed. To the list of lettings for the early part of this month the following are added: Wahoo, Nev., July 6; Sheridan, Wyo., July 6; Detroit, Mich., July 14. An Eastern company was the successful bidder on 6000 tons of Water Pipe for Cuban points, and a contract covering 1000 tons for Pensacola, Fla., was awarded a Southern interest July 1. We quote Water Pipe as follows, per net ton, f.o.b. cars here: 4 to 6 in., $23; 8 to 12 in., $22; over 12-in., average $21, with $1 per ton extra for Gas Pipe.

Old Material.—The market is without signs of improvement. Consumers are apparently disinterested other than for actual requirements and the aggregate of their engagements is comparatively insignificant. Quotations are revised on some grades, but no transactions have recently been recorded that could be considered a criterion of values. We quote nominally as follows, per gross ton, f.o.b. cars here:

Old Iron Rails	$14.50 to $15.00
Old Iron Axles	$14.00 to 14.50
Old Steel Axles	12.50 to 13.00
No. 1 Railroad Wrought	12.00 to 12.50
No. 2 Railroad Wrought	9.00 to 9.50
No. 1 Country Wrought	10.50 to 11.00
No. 2 Country Wrought	9.50 to 10.00
No. 1 Machinery Cast	10.00 to 11.00
No. 1 Steel	9.50 to 10.00
Wrought Pipe and Flues	8.50 to 9.00
Stove Plate and Light Cast	8.50 to 9.00
Cast Borings	5.00 to 5.50

Cincinnati.

CINCINNATI, OHIO, July 8, 1908.—(*By Telegraph.*)

Little actual business of any kind is going on in the Iron and Steel line, but signs of further activity multiply, and there is a feeling that long desired relief is near at hand. These signs are evidently in the optimistic talk of the machinery manufacturers, preparations of foundrymen for the more economical handling of castings, and the presence in the city of officials and agents of blast furnaces arranging for sales or renewal of operations suspended at the beginning of or during the slump. All local Pig Iron dealers report encouraging signs in the way of inquiries for Iron for next year. Money is plentiful, and indications are that it will be cheaper very soon, which will be of material help in a number of good sized propositions for buildings and improvements determined on within the past 10 days or two weeks. Tool manufacturers report an increasing interest manifested on the part of the railroads for shop needs, and believe that some good sized lists are in preparation.

Pig Iron.—Some good sales have been made, but it is reported at close figures. Published prices have been maintained remarkably well as far as can be learned, notwithstanding persistent rumors of shading on a large tonnage in which Bessemer predominated to a prominent agricultural implement manufacturer in an adjoining State. While the quoted prices of the new furnaces which are to make their entree in this territory soon are in line with established trade, it is rumored that some inducements have been offered to introduce the new brands, and this has unsettled the local markets somewhat on Northern Silveries and Foundry Irons. There are also charges of cutting on the Southern product and $11.50, Birmingham, for No. 2, is heard at every turn, but as nearly as this rumor can be verified is that a speculative interest is abroad with a little off analysis Iron that it is willing to dispose of at a slight margin of profit. Some new prices were established on popular grades of Iron in the implement manufacturer's purchase above referred to, among which figures a 50 ton lot of Ferromanganese at $46.50 delivered, and about 500 tons of Ohio Silvery 9 and 10 per cent. at approximately the price of the Southern product, which is quotable at a slightly reduced price usually. The scarcity of low grades continues, and few furnaces are able to quote on Forge or Mottled, the price of the former being firm at about $10.75, Birmingham. A little inquiry for Malleable has developed in the past few days, and indications are good for a general revival among concerns using this grade. An Ohio consumer is asking for prices on 1000 tons for nearby delivery. A prominent manufacturer of agricultural implements asks for prices on 1000 tons divided equally between Northern and Southern Foundry for the last four months for delivery to its Ohio factory. An Indiana concern is out with an inquiry for 500 tons each of Northern and Southern No. 2 Foundry for the last half, but this is suspected to be rather in the nature of a feeler. Some interest is shown in Standard Bessemer, which is quoted at about $16, Valley furnace, and said to be shaded from 25c. to 50c. Local foundries, aside from one which has had out an inquiry for 800 tons for more than a week and is yet not closed, are not interested in the market and the larger melters do not look for much relief until after the election. As a rule, sellers are quoting on fourth quarter business now at the ruling price for the current quarter. For early delivery and for balance of the year we quote, f.o.b. Cincinnati, as follows, the rate from Birmingham District being $3.25, and from Hanging Rock, $1.20:

Southern Coke, No. 1	$15.75 to $16.25
Southern Coke, No. 2	15.25 to 15.75
Southern Coke, No. 3	14.75 to 15.25
Southern Coke, No. 4	14.25 to 14.75
Southern Coke, No. 1 Soft	15.75 to 16.25
Southern Coke, No. 2 Soft	15.25 to 15.75
Southern Coke, Gray Forge	13.75 to 14.25
Ohio Silvery, 8 per cent. Silicon	19.70
Lake Superior Coke, No. 1	16.70 to 17.70
Lake Superior Coke, No. 2	16.20 to 17.20
Lake Superior Coke, No. 3	15.70 to 16.70
Standard Southern Car Wheel	22.25 to 22.75
Lake Superior Car Wheel	21.75 to 22.25

(*By Mail.*)

Coke.—Consumers of Furnace grades are taking shipments on contract. Practically all contracting for the balance of the year and for the first half of next has been negotiated and therefore there is little demand not already taken care of, as few idle furnaces have announced intention of resuming operations. The price on favorite brands of Furnace Coke ranges from $1.75 to $2 at oven. Foundry Coke is quiet, and the price runs from $2 to $2.50 on spot shipments, with little or no contracting. There is some dissatisfaction with the railroads which are apparently endeavoring to find excuses for increasing rates. The rate on Iron from the Virginia furnaces to the St. Louis and East St. Louis District has been advanced by the Chesapeake & Ohio Railroad 10 cents a ton, which makes that rate now $3.60.

Finished Iron and Steel.—This market is very dull. No change of prices has been made as yet, but there is much dissatisfaction, and dealers look for a break almost any day. What little buying there is at this time comes mostly from the agricultural implement people and buggy and carriage manufacturers. Steel Tire such as is used by the latter is quoted here at 1.75c. in carload lots, and 2c. in small lots. There is a little movement in Twisted Steel Bars for concrete construction. Orders are filled from stock at the following prices, which are f.o.b., Cincinnati: Iron Bars, carload lots, 1.65c., base, with half extras; small lots from store, 1.85c., base, half extras; Steel Plates, carload lots, 1.75c., base, with half extras; small lots from store, 1.85c., base, half extras; Base Angles, carload lots, 1.85c., base; small lots from store, 2.10c.; Beams, Channels and Structural Angles, 1.85c., base; small lots from store, 2.10c.; Plates, ¼-in. and heavier, carload lots, 1.85c.; small lots from store, 2c.; Blue Annealed Sheets, heavy, No. 16, carload lots, 2.15c.; small lots from store, 2.50c.; No. 14, carload lots, 2.05c.; small lots from store, 2.40c.; No. 10, and heavier, carload lots, 1.95c.; small lots from store, 2.20c.; No. 12, carload lots, 2c.; small lots from store, 2.30c.; Sheets (Light), Black, No. 28, carload lots, 2.65c.; Galvanized Sheets, No. 28, carload lots, 3.70c.; Steel Tire, 4-in. and heavier, carload lots, 1.95c.; Plates, 3-16 and No. 8, carload lots, 2c.; small lots from store, 2.20c.

Old Material.—Prices have gone off a shade on many items, and dealers are not anticipating any relief until after the election or perhaps the first of the year. The large dealers are confident, however, and are looking forward to a normal and perhaps abnormal market in the winter. Such transactions as are being booked at this time are mainly in Stove Scrap, Melting Steel, and Relayers. As nearly as they can be fixed under the ruling conditions, prices may be quoted, f.o.b. Cincinnati, as follows:

No. 1 R. R. Wrought, net ton	$10.00 to $11.00
Cast Borings, net ton	4.00 to 5.00
Heavy Melting Steel Scrap	10.00 to 11.00
Steel Turnings, net ton	5.00 to 6.00
No. 1 Cast Scrap, net ton	10.25 to 11.25
Burnt Cast and Wrought, net ton	8.00 to 9.00
Old Iron Axles, net ton	14.50 to 15.50
Old Iron Rails, gross ton	13.00 to 14.00
Old Steel Rails, long, gross ton	10.50 to 11.50
Old Steel Rails, short, gross ton	11.00 to 12.00
Relaying Rails, 56 lb. and up, gross ton	20.00 to 21.00
Old Car Wheels, gross ton	12.00 to 13.00
Low Phosphorus Scrap, gross ton	13.00 to 14.00

Rome Furnace at Rome, Ga., will go in blast about August 1 on Foundry Iron. This furnace has been out of blast since last October, when for a time it was on Charcoal Iron. Its capacity is about 2500 tons a month. Operations will be in charge of Thomas J. Dean. The product is to be marketed under the name Silver Creek. Rogers, Brown & Co., Cincinnati, will be sole selling agents.

Arrangements have just been perfected by President C. P. Perin and Manager Samuel Fearing of Embreeville Furnace at Embreeville, Tenn., for going into blast about August 15. This furnace has been out of blast since May. Hickman, Williams & Co., Cincinnati, will market the product, which will be a high Manganese Iron.

The American Cast Iron Pipe Company, Birmingham, Ala., has completed its department for making large size pipe, and will commence operations July 15. The addition will increase the company's output approximately 40 per cent.

Cleveland.

CLEVELAND, OHIO, July 7, 1908.

Iron Ore.—Ore shipments from upper lake ports in June were 2,585,682 tons, making the movement 2,870,996 tons up to July 1, or 9,814,519 tons less than the shipments up to July 1 last year. Only a small additional tonnage of Ore was sold the past week, and in view of the limited sales so far the shipments in July will be rather light. The bulk of the Ore shipments for the season will be made after August 1. The lake fleet can readily bring down 6,000,000 tons per month, so that no trouble is feared in getting down the required amount of Ore the latter part of the season. The estimates made some time ago that not over 20,000,000 tons of Ore will be brought down this season are as yet unchanged. A number of furnace interests that will require Ore later are not yet ready to buy. A few will need no Ore before the opening of navigation in 1909. There is a fair movement from the docks, the consuming interests taking last year's Ore instead of making new purchases. There are at present too many boats in commission for the tonnage that is moving. Most of the large Ore firms have all they can do to take care of their own boats. The only chartering of importance noted during the week was for 50,000 tons of Ore for shipment from Escanaba at 50 cents a ton. At a meeting of the Executive Committee of the Lake Carriers' Association it was decided that the wage schedule adopted last spring should stand. The schedule, which is the same as last year, was agreed upon when the lake carriers adopted the open shop policy. Since the carrying charges for Ore were reduced 10 cents a ton there has been considerable talk of reducing the pay of sailors. Some of the vessel owners that are not members of the association have reduced wages. Ore prices for 1908 delivery at Lake Erie docks, per gross ton, are as follows: Old Range Bessemer, $4.50; Mesaba Bessemer, $4.25; Old Range Non-Bessemer, $3.70; Mesaba Non-Bessemer, $3.50.

Pig Iron.—While the market is quiet, some sales of Foundry Iron are still being made, a number of lots ranging from 100 to 500 tons having been disposed of. The purchasers were mainly consumers, who did not make contracts in the recent buying movement. We also note the sale of 1000 tons of off Iron. The only large inquiry in the market is for 1500 tons of No. 3 Northern Foundry for July and August delivery, from the local plant of the United States Cast Iron Pipe & Foundry Company, which was awarded the contract last week for 3400 tons of Cast Iron Pipe for the Cleveland waterworks department. Prices remain firm and stationary. We quote No. 2 Northern Foundry at $15, Valley furnace, for last half delivery. Several interests are asking $15.25. Local furnaces quote No. 2 Foundry at $15.75, delivered, Cleveland, and about $15, at furnace, for outside shipments. The melt in this territory shows some increase, and shipping orders are fairly good. While some furnaces were able to ship about all their output in June, others, only a portion of whose output is sold, are piling considerable Iron. One feature of the situation that is regarded as encouraging is the fact that about all the high-priced Foundry Iron sold for delivery the latter part of last year has at last been taken by consumers. Many of the foundries in the past few months have been taking a portion of the high-priced Iron and buying some Iron at lower market prices to go with it. Some of the large consumers of Malleable Iron, however, still have considerable high-priced Iron coming to them on old contracts. With the exception of the little activity in Foundry Iron the market is lifeless. For prompt shipment and for the last half, we quote, delivered, Cleveland, as follows:

Bessemer	$16.90
Northern Foundry, No. 1	$16.25 to 16.50
Northern Foundry, No. 2	15.75 to 16.00
Northern Foundry, No. 3	15.25 to 15.50
Southern Foundry, No. 2	16.35
Gray Forge	14.90

Coke.—The market has quieted down, after a fairly active buying movement in Foundry grades. There is no demand for Furnace Coke. Prices remain stationary. We quote Connellsville Furnace Coke for last half delivery, at $1.75 to $1.85, at oven, lower prices being quoted for spot delivery. We quote 72-hr. Foundry Coke at $2.25, at oven, for last half delivery.

Finished Iron and Steel.—Specifications on contracts show some improvement as compared with the previous two or three weeks. An encouraging feature of the market is the fact that specifications are now coming for somewhat larger tonnages than have been wanted for some time. For the past few months a large share of the orders have been for less than carload lots. The volume of orders is deemed satisfactory, considering the fact that many industrial plants were shut down July 1 for inventories. In most cases these shutdowns will be for only a few days. A number of additional contracts were closed during the week, with manufacturers for the balance of the year for Steel Bars, Shapes and Plates. The contract for the Structural Material for the Sterling & Welch store building has been awarded to T. H. Brooks & Co., Cleveland. The building will require 1400 tons of Structural Material, and the contract price was about $77,000, or $55 per ton, fabricated and erected. Bids will be received this week for about 1500 tons of Structural Material for a new store building for the Bailey Company. The erection of the building will not be started until January. The demand for Iron Bars is light. With mills shut down, jobbers are looking for some improvement in their store business. With the exception of concessions by some of the smaller Plate and Sheet mills, prices are being firmly maintained on all lines. The feeling among consumers after the recent price reductions that there would be further cutting of prices on Finished Lines has largely disappeared. While the mills are not expecting a large volume of orders in July and August, there is a general feeling that there will be a decided improvement in business conditions by September 1. We quote Iron Bars at 1.45c., Cleveland, for car lots; Steel Bars, 1.50c., Cleveland, for car lots, half extras; Beams and Channels, 1.70c., base, Cleveland, and Plates, ¼-in. and heavier, 1.70c., Cleveland. Dealers quote Sheets, mill shipments, car lots, Cleveland, as follows: Blue Annealed, No. 10, 1.90c.; Box Annealed, No. 28, 2.60c.; Galvanized, No. 28, 3.65c. Jobbers quote Iron and Steel Bars out of stock at 1.65c. to 1.70c., Beams and Channels from warehouse are 2c. and Plates, ¼-in. and heavier, 1.90c. Warehouse prices on Sheets are as follows: Blue Annealed, No. 10, 2.10c.; Box Annealed, No. 28, 2.70c.; Galvanized, No. 28, 3.80c. Warehouse prices on Boiler Tubes, 2¾ to 5 in., are 64 per cent. discount, and on Black Merchant Iron Pipe, base sizes, 71 per cent. discount.

Old Material.—The market is quiet, and with many of the mills shut down, little activity is expected the present month. There is some trading among dealers, but little demand from consumers. Mills that are still running have enough Scrap on hand to supply their immediate needs. Prices of all kinds of Scrap remain firm and stationary. Dealers are looking for a fair demand and somewhat stronger prices during August. The railroad offerings this week include 3500 tons to be sold by the Baltimore & Ohio and 500 tons by the Nickel Plate. Dealers' prices to the trade, per gross ton, f.o.b. Cleveland, are as follows:

Old Steel Rails	$13.00 to $13.50
Old Iron Rails	15.00 to 16.00
Steel Car Axles	16.50 to 17.50
Old Car Wheels	14.00 to 14.50
Relaying Rails, 50 lb. and over	22.00 to 23.00
Heavy Melting Steel	12.50 to 13.00
Railroad Malleable	12.00 to 12.50
Agricultural Malleable	11.00 to 11.50
Light Bundled Sheet Scrap	8.00 to 9.00

The following quotations are per net ton, f.o.b. Cleveland:

Iron Car Axles	$16.00 to $16.50
Cast Borings	6.00 to 6.50
Iron and Steel Turnings and Drillings	7.00 to 7.25
Steel Axle Turnings	8.50 to 9.00
No. 1 Busheling	11.00 to 11.50
No. 1 Railroad Wrought	12.00 to 13.00
No. 1 Cast	12.00 to 12.50
Stove Plate	9.50 to 10.00
Bundled Tin Scrap	8.00 to 9.00

Philadelphia.

PHILADELPHIA, PA., July 7, 1908.

A temporary lull, usual at this season, is to be noted. The midsummer closing of plants for stock taking and repairs and the national holiday are the general factors which retard business at the time, while the political situation, owing to the nomination of the Presidential candidate of the Democratic party, during the current week, is an added influence, which no doubt also affects trade to a certain extent at the time. July is usually not a very active month, and the present one will hardly prove an exception. The trade, however, views the situation most optimistically. The strong undertone of the market is generally commented on, and it is believed that later in the month a resumption of business will be noted, possibly not in any great force, but in the nature of a continued moderate improvement, which will gradually lead to more normal conditions in general.

Pig Iron.—The effect of the usual midsummer apathy is apparent, and the aggregate volume of business is small. Some scattered buying is noted of Foundry Iron for both prompt and forward shipment at full prices, and the general tone of the market, notwithstanding the immediate lack of business, is decidedly strong. The tendency on the part of a few furnaces in the central part of the State to shade prices is not so apparent as it was, while the Eastern furnaces hold the present range of prices firmly. Stocks on furnace banks are reported to be declining sharply in some instances, and furnacemen contend that no further capacity will be put in at the present range of prices. Interest centers largely in deliveries for the fourth quarter, for which most sellers are firmly asking and making sales at an advance of 50c. a ton. Where deliveries cover the entire half of the year, shipments beginning at once and continuing regularly, sales have been made at the top price of the ruling quotations. Sales ordinarily have been in comparatively small tonnages, ranging from 50 tons up to a few hundred, with an occasional larger lot. For prompt shipment, $16.50 delivered, is about the best that can be done for Standard

No. 2 X Foundry, while sales of the same grade for strictly fourth quarter delivery have been made at $17, delivered, although some sellers hold for higher figures. The Pipe foundries have been taking odd lots of both No. 2 X and No. 2 Plain Iron, which they have been able to pick up here and there at low figures, but have not come into the market recently for large quantities. Virginia Foundry Irons have been held pretty firmly, with sales reported for both Eastern and Western delivery, for third quarter shipment, at prices equal to $17, delivered, here for No. 2 X Foundry. Two sales of fourth quarter No. 2 X Iron, 800 tons each, are reported at $14.50 and $15, at furnace, respectively, which is equal to $17.50 and $18, delivered, in this territory. Southern Iron has been quiet. Even at the reported concession in prices but little business has been done, although it is said that some of the Pipe makers would buy if their ideas of prices would be met. Little has been done in Basic Iron, sales of a 500-ton and a 1000-ton lot, for last half delivery, being reported at the market. There has not been much demand for Forge Iron, although one sale of a fair tonnage for shipment in the last half of the year has been reported at current prices. Inquiries are fairly plentiful, both for prompt and forward Iron, but the tonnages wanted are usually small. In this immediate territory, particularly, there is little business pending of any size. Prices are practically unchanged, and range as follows for deliveries in buyers' yards, eastern Pennsylvania and adjoining territory, during the third quarter, while for strictly fourth quarter delivery sales have been made at an advance of 50c. to 75c. a ton, dependent on brand and tonnage:

Eastern Pennsylvania, No. 2 X Foundry	$16.50 to $16.75
Eastern Pennsylvania, No. 2 Plain	16.00 to 16.25
Virginia, No. 2 X Foundry	17.00
Virginia, No. 2 Plain	16.50 to 16.75
Gray Forge	15.00 to 15.50
Basic	15.25 to 15.50
Low Phosphorus	21.00 to 21.25

Ferromanganese.—Little demand is reported, even at the recent low prices, and sellers have in a number of instances advanced their quotations to $46, seaboard, although there is little doubt that moderate tonnages for last half delivery could still be had at $43.50 to $44.50, Baltimore.

Steel.—Business has been at a standstill. The demand has been light, and the tonnage booked insignificant. Prices are unchanged, ordinary Rolling Steel being quoted for delivery in this territory at $26.20, with Forging Steel at $28.20, subject to the usual extras for high carbons and special sizes.

Plates.—A very fair run of orders for Steel Plates has been enjoyed, notwithstanding the holiday. The individual orders are not large, but aggregate a good tonnage. A little railroad business has come out, as have also some locomotive, boat and bridge Steel orders, while some pretty good tonnages of boat Steel are being figured upon. Prices on the whole are being well maintained and range as follows for delivery in this territory.

	Carloads. Cents.	Parts carload. Cents.
Tank, Bridge and Boat Steel	1.75	1.80
Flange or Boiler Steel	1.85	1.95
Commercial Firebox	1.95	2.00
Marine	2.15	2.20
Locomotive Firebox Steel	2.25	2.30

The above are base prices for ¼-in. and heavier. The following extras apply:

	Extra per 100 lb.
3-16-in. thick	$0.10
Nos. 7 and 8, B. W. G.	.15
No. 9, B. W. G.	.25
Plates over 100 to 110 in.	.05
Plates over 110 to 115 in.	.10
Plates over 115 to 120 in.	.15
Plates over 120 to 125 in.	.25
Plates over 125 to 130 in.	.50
Plates over 130 in.	1.00

Structural Material.—The bulk of the business being placed is in small lots, mostly for bridge and building work, ranging customarily from 50 to 100 tons. Larger propositions are for the most part temporarily held up. For delivery in this territory prices are unchanged, ranging from 1.75c. to 1.90c., according to specification.

Sheets.—Some few orders have come out, but the demand is not active; sufficient will be in hand, it is believed, to start some of the mills, which have been closed for repairs over the holidays, early next week. Practically all the business placed has been for prompt shipment, consumers not anticipating their wants. Quotations remain unchanged, ranging as follows for mill shipments, a tenth extra being added for small lots: Nos. 18 to 20, 2.50c.; Nos. 22 to 24, 2.60c.; Nos. 25 to 26, 2.70c.; No. 27, 2.80c.; No. 28, 2.90c.

Bars.—A better demand has been experienced for Iron Bars. Consumers are willing to anticipate their wants at to-day's prices, but mills will not contract for forward delivery at those figures. For desirable prompt business, 1.30c., at Eastern mill, can be done, with 1.35c. to 1.40c. named for delivery in this territory on the general run of sizes for prompt shipment. Little business has been done in Steel Bars, which are quoted at 1.55c., delivered in this territory, with rerolled Bars at 1.50c.

Coke.—Not much business has been transacted. Some sellers are firmer in their quotations, but there is still some low-priced Coke reported around. Foundry Coke is quoted at $2.15 to $2.35, at oven, with Furnace Coke at $1.50 to $1.75, at oven. For delivery in this territory the following range of prices is named:

Connellsville Furnace Coke	$3.65 to $3.90
Foundry Coke	4.30 to 4.50
Mountain Furnace Coke	3.25 to 3.50
Foundry Coke	3.90 to 4.10

Old Material.—The market appears firmer, even in the absence of business of any quantity. Some few odd lots of Steel Scrap have been picked up by the mills, but dealers will not sell any large tonnages at present prices. Rolling mills are still taking moderate quantities of No. 1 Wrought Iron, Borings and Turnings, and prices of these materials, while not quotably higher, are decidedly firmer. Quotations, which are largely nominal, range as follows for prompt delivery in buyers' yards, eastern Pennsylvania and nearby territory:

No. 1 Steel Scrap and Crops	$13.50 to $14.00
Low Phosphorus	18.00 to 18.50
Old Steel Axles	18.00 to 18.50
Old Iron Axles	20.00 to 21.00
Old Iron Rails	18.00 to 18.50
Old Car Wheels	13.50 to 14.00
Choice No. 1 R. R. Wrought	15.75 to 16.00
Machinery Cast	14.00 to 14.50
Railroad Malleable	11.75 to 12.25
Wrought Iron Pipe	12.00 to 12.50
New Bundled Sheets	12.00 to 12.50
No. 1 Forge Fire Scrap	11.50 to 12.00
No. 2 Light Iron	7.50 to 8.00
Wrought Turnings	9.50 to 10.00
Stove Plate	11.00 to 11.50
Cast Borings	9.00 to 9.50
Grate Bars	11.75 to 12.25

The German Iron Market.

BERLIN, June 23, 1908.

Further deterioration of the trade position has been the current drift since last report. The situation has within a fortnight been complicated and rendered worse through the uncertainty as to the prolongation of the four Pig Iron syndicates of the country. These organizations only last, according to contract, till the end of the year, but they renew themselves automatically as long as no establishment gives notice of withdrawal. An important furnace company at Duisburg, the Niederrheinische Hütte, above a week ago announced its intention to quit the Duesseldorf Syndicate, which is the chief organization of the Pig Iron trade, at the end of the year. The Siegerland Syndicate, which sells its product of Spiegeleisen and other high grade qualities through the Duesseldorf Syndicate, gave notice at once that it would not renew its present contract with the latter. Then the Luxemburg-Lorraine Syndicate, which maintains a selling agency in Duesseldorf and operates in harmony with the big syndicate there, announced its withdrawal from its contract agreement.

A Single Pig Iron Combination Favored.

This leaves the outlook for the reorganization of the syndicates highly uncertain, inasmuch as there are extremely difficult problems to be solved and disagreements to be adjusted before a combination can be formed to take their places. The motive behind the discontent with existing arrangements is the wish to have a single great Pig Iron combination for the entire empire, and this discontent has grown out of the attitude of the furnaces connected with the great Steel companies. The latter are not only masters of the Steel trade through their organization, the Steel Works Union, but they are also the dominant element in the Duesseldorf Syndicate and determine its price policy. Latterly a controversy has arisen in the syndicate between the detached furnaces and the Steel company furnaces, the former claiming that the great companies utilize their membership in the syndicate with a ruthless disregard for the interests of the isolated furnaces. They point out that those companies disregarded their allotments of Pig Iron for delivery to the syndicate during the recent period of highly prosperous business, since they wanted to use up all their product in their own Steel mills; but now that the situation has changed and the demand for Steel products has sharply diminished, the big companies find themselves able to produce much more Iron than they can consume. Hence they insist upon turning over to the syndicate what they cannot use in their mills. This intensifies the competition for the small detached furnaces at a moment when they are least able to stand it. They are pretty hard hit by the course of the mixed companies, and the curtailment of production that has taken place this year has fallen chiefly upon them.

On the other hand, the furnaces of the big Steel companies have scarcely reduced their rate of production. Thus it comes about that the reduction of the country's Pig Iron output for the first five months of the year reached only 318,000 metric tons in a total of 5,093,000 tons. The make for May was 1,010,900 tons, which is 31,000 tons more than in April, but 82,400 tons less than in May, 1907. The continued high rate of production begins to find expression in pretty heavy accumulations of stocks at the furnaces. By the end of April these had amounted to 520,000 tons, and they are probably now above 750,000 tons. In this period

of rapid technical progress in the methods of furnace and mill operation it is interesting to note the explanation given for the continued heavy production of Iron at the furnaces of the great mixed concerns. These say they need the furnace gases for running their power plants, and the blowing out of a single furnace would in many cases cause a complete derangement of the power supply; hence furnaces are kept going for power purposes at a time when trade conditions would seem to demand that they be blown out.

The Price Question.

The complaints of the "pure" furnaces against the great mixed companies do not end with the foregoing statement. The matter of prices also is a ground for discontent. The policy of the syndicate, as mentioned already, is controlled by the big Steel Works Union establishments, and they have found it in their interest to keep the price of Iron at a high level, influenced by their desire to prevent the independent Steel producers from getting cheap Iron. These latter are the chief suppliers of the detached rolling mills, the competitors of the union companies; and in order to make these mills pay high prices for their Steel material the big companies saw to it that Iron prices remained high, although the "pure" furnaces wanted to reduce them more rapidly in order to encourage production. At present the price of Bessemer Pig Iron is still 80 marks per ton, but last week the syndicate finally yielded to the prolonged clamor of the trade and ordered a cut of 5 marks for the next quarter. At the same time puddling and Steelmaking Irons were cut 4 marks; No. 1 Foundry, 4 marks, to 72 marks, and No. 3 Foundry, 2 marks, to 69 marks.

Last week the Steel Works Union also voted a cut of 5 marks on Billets. The trade had long been demanding a reduction, and this one comes, from the consumers' standpoint, not only very tardily, but also of too small a size to relieve the stagnation of business. The Union had hitherto made only one reduction—namely, of 10 marks last December—in the price of Billets since the changed situation of the trade set in. The price was then fixed at 100 marks; last week it was fixed at 95 marks for the next quarter. On the other hand, according to newspaper reports, German Steel material is being sold in the English market 20 to 25 marks a ton cheaper than in Germany. The "pure" rolling mills will hardly be relieved by the cut just made, as it still leaves it possible for the English competitors to buy German Steel at prices so low as to prevent the German mills from selling their finished goods in neutral markets in the face of their competition. At the same time the Union refused to increase the drawback on exported finished goods. The prices of Rails and Structural forms were left unchanged. Critics of the great combination continue to point out that Structural prices are much too high relatively to other goods, and that this fact is having a very restrictive effect upon building operations.

The Union's May report shows shipments of 414,855 tons of Steel Rails, Structural Shapes and Billets. This compares with 371,956 tons in April and 489,307 tons in May, 1907.

General Conditions.

The general position of the trade has certainly grown less satisfactory than it was a month ago. All the reports from the Iron centers agree in representing the state of business as very bad. Consumers still pursue the policy of placing only very small orders; they are merely taking such amounts as they imperatively need. In doing so they are evidently actuated by their knowledge that they will have no difficulty at any time in obtaining additional quantities as needed. Under all the circumstances a decidedly pessimistic tone prevails There is no expectation of an improvement this year; the most that is hoped for is that trade may grow better next spring. Just now the money market has begun to show substantial signs of improvement, and if this continues for the rest of the year the building trades ought to show a considerably increased activity next spring, and this would have a reviving effect upon the Iron trade.

Notwithstanding the dullness of trade, considerable demands for new capital are coming from Iron companies. This is partly from companies that began improvements within the past year or two and have not yet finished them. In some cases it is where money has still to be raised to pay for improvements already finished, but some companies are even showing their confidence in the future by raising money for beginning new undertakings. The great Krupp Company has just announced a loan of 12,000,000. It needs the money for acquiring Coal properties and paying for improvements in some parts of its works.

Buffalo.

BUFFALO, July 6, 1908.

The prevailing depressed conditions in the Pig Iron market, combined with the customary midsummer quietness, cause a very limited local demand, and such orders as are placed are for small quantities to supply immediate necessities only, running from carloads to 100 and 200 ton lots. Prices are at about as low a level as at any time since the first of the year. Some inquiry is noted for deliveries covering the last half of the year for small amounts, but few deals are being consummated. The market is represented approximately by the following prices, f.o.b. Buffalo:

No. 1 X Foundry	$16.25 to $16.50
No. 2 X Foundry	15.75 to 16.00
No. 2 Plain	15.25 to 15.50
No. 3 Foundry	14.75 to 15.00
Malleable Bessemer	16.00 to 17.00
Gray Forge	14.75 to 15.00
Charcoal	20.00 to 20.50

Metal Market.

NEW YORK, July 8, 1908.

Pig Tin.—Very little business was done last week. A number of inquiries were in the market, but the advancing prices apparently frightened buyers. Quotations have steadily advanced, and Tin is now above import cost. The following prices have ruled during the week:

	Cents.
July 1	27.20
July 2	27.30
July 3	27.45
July 6	27.50
July 7	27.60
July 8	28.05

Another favorable feature in the situation is that the outside speculative lots which have been making the market for several weeks have apparently been cleaned out, and importers are now doing the business. From the manner in which the Spot stocks are strongly concentrated in a few hands, it would appear that there was little Tin in the market, but this is misleading, as there is plenty for present requirements. The arrivals amount to 392 tons, and there are afloat for American ports 2397 tons. The London market shows an advance of about £3 from last week, Spot closing to-day at £127 7s. 6d., and futures at £128 10s. The sharp bulge in London to-day was said to be due to disquieting rumors regarding the safety of the steamer Verona, which was to arrive in New York the last of the month. Little can be learned here about her except that she carries 900 tons of Tin.

Copper.—A better sentiment prevails in the Copper market, and although sales have been few they show that the trend is upward. Some Electrolytic was sold during the week at 12.75c. The general quotation for Electrolytic is 12.62½c. to 12.75c., which although unchanged from last week could scarcely be shaded. Numerous inquiries are in the market for delivery after September 1, and invariably producers or selling agents here quote prices entirely too high or refuse to make quotations. If last quarter's delivery could be had at to-day's prices, it is felt that quite a business could be done. Those who have been looking for a bad break in the market feel now that perhaps it may not come, pointing out that each week passed without a sharp drop in quotations is so much nearer the ultimate goal, and it is thought the heavy speculative purchases in London during May and June probably eliminated the possibility of a sharp decline. Sharply increasing demands have been noticed for Copper products since July 1. This applies noticeably to Copper Sheets. Buyers for foreign accounts are not active at present, but would probably take on some future Copper at to-day's export quotations. The imports of Copper for May, as per Government returns now for the first time available, were 3300 tons, making a total of 32,900 tons for the first five months this year, compared with 56,250 tons during the corresponding period last year. The figures for May are evidently too low. The London market has likewise advanced, and is now £1 higher than last week, closing to-day at £57 10s. for spot and £58 2s. 6d. for futures.

Waterbury Average.—The Waterbury average for June was 13 cents.

Pig Lead.—The leading interest continues to quote shipment Lead in 50-ton lots, at 4.50c., New York. The premium on spot has entirely disappeared, and some sales have been made at small concessions from the price of the leading interest. The St. Louis market is slightly easier, at 4.35c. to 4.40c.

Spelter.—General apathy prevails in the Spelter market, and there is really not enough business to make quotations. In a general way, however, prices are lower, and Prime Western brands can be had at 4.45c., New York, and 4.30c., St. Louis. Until the large stocks which are hanging over the market can be taken care of in some better manner, the market is likely to rule dull.

Antimony.—Quotations are nominal. There is little business of any character. Prices are unchanged, with Hallett's selling at 8.25c. to 8.50c.; Cookson's at 8.50c. to 8.75c., and outside brands 8c. to 8.25c.

Nickel.—Prices are unchanged, at 45c., for ton lots, and 55c. to 65c., for smaller quantities.

Tin Plate.—New business is light, but the mills continue actively engaged on old orders. Prices are absolutely without change, at $3.89, New York, and $3.70, Pittsburgh,

for 100-lb. IC Coke Plates. In Swansea, Welsh Plates are unchanged, at 12s. 3d.

Old Metals.—Business has dwindled to small proportions, largely because foreign buyers are not so eager to purchase scrap as a month ago. Prices, however, are absolutely without change, and dealers' selling quotations are repeated from last week, as follows:

	Cents.
Copper, Heavy and Crucible	12.00 to 12.25
Copper, Heavy and Wire	11.75 to 12.00
Copper, Light and Bottoms	10.75 to 11.00
Brass, Heavy	8.75 to 9.00
Brass, Light	7.00 to 7.25
Heavy Machine Composition	11.50 to 11.75
Clean Brass Turnings	7.75 to 8.25
Composition Turnings	9.00 to 9.50
Lead, Heavy	4.20
Lead, Tea	3.85
Zinc	3.50

New York.

NEW YORK, July 8, 1908.

Pig Iron.—Since the purchase last week of an aggregate of about 7000 tons by the leading pump interest, for New Jersey and New England delivery, no large transactions have taken place, and the market is stationary. The quantity purchased by the interest in question was cut down below the original estimates. We quote, at tidewater: Northern No. 1 Foundry, $16.75 to $17; No. 2 Foundry, $16 to $16.50, and No. 2 Plain, $15.25 to $15.50. Alabama Irons are quoted $16.50 to $17 for No. 1 Foundry, and $16 to $16.25 for No. 2 Foundry.

Steel Rails.—There is little expectation that further important new contracts will be placed for Rails for this year's delivery, though business heretofore closed is being reported in the daily press from time to time as though it were new. The Lackawanna Steel Company has the contract for 1000 tons of Rails for the Interborough system, and a contract for several hundred tons of girder Rails for New York City has been placed.

Structural Material.—From the mill standpoint the situation in Structural Steel is fairly satisfactory, though the fabricating interests are not as well assured concerning operations two or three months ahead as they would like to be. The absence of railroad contracts is a continuing feature, and with bridge business light there is still the sharpest kind of competition for building contracts. The principal business taken last week was the Farmers' Loan & Trust Company Building, the Steel, amounting to about 2000 tons, going to the Lackawanna Steel Company. The Levering & Garrigues Company has the fabricating contract. For the Sinclair Realty Company Building the Hay Foundry & Machine Company has the contract. About 1000 tons of Steel will be required. Some work is coming up on the Pacific Coast, including a large hotel at Oakland, Cal. The Milliken Brothers' receivers have taken the contract for the Arctic Club at Seattle, Wash., calling for about 350 tons. In New York City considerable additional school building work is coming up in the near future. We quote as follows on mill shipments, tidewater delivery: Beams, Channels, Angles and Zees, 1.76c.; Tees, 1.81c. On Beams, 18 to 24 in., and Angles over 6 in., the extra is 0.10c. Material cut to length is sold from stock at 2¼c. to 2½c.

Bars.—Quite an improved demand for Bar Iron has been observed since the opening of the month. Semi-annual stock taking appears to have been more general than for years, and small orders are now coming in quite freely to fill broken assortments. An interesting development is the appearance of quite a number of railroads as buyers, this being the first time in a long period that anything of importance has come from that direction. Manufacturers of Bar Iron are feeling more confidence in the future, and are instructing their salesmen not to accept orders for delivery beyond 90 days, believing that within that time business will be much more active and that prices will be higher. While some sales have been made as low as 1.35c., tidewater, it is alleged that this has only been by mills having odds and ends in their warehouses which they desire to clean up. The general price on good assortments is 1.40c., tidewater. Steel Bars are held at 1.56c., tidewater.

Plates.—As many orders are being placed as usual, but all are small. Ordinarily these orders do not call for more than one-third of the size placed in normal times. The volume of business is therefore quite light. While the feeling is a little more hopeful, there are some indications that prices are not being closely held, even on standard sizes. Usual quotations on wide Plates are as follows at tidewater: Sheared Plates, 1.76c. to 1.86c.; Flange Plates, 1.86c. to 1.96c.; Marine Plates, 2.16c. to 2.26c.; Firebox Plates, 2.65c. to 3.50c., according to specifications.

Cast Iron Pipe.—New York City is buying 700 tons of Water Pipe to-day through contractors. One of the Newark or Essex County boards will buy this evening about 500 tons. The general demand for the past few days has been running quite light, which is probably due to the extremely hot weather and the vacation season. Prices are firm at $24.50 to $25 per net ton at tidewater for 6 in.

Ferroalloys.—The market is stagnant, and in the absence of business, large or small, prices are quoted, nominally, at $44.50, for 80 per cent. Ferromanganese, and $70 for 50 per cent. Ferrosilicon, f.o.b. Makers' works, or seaboard.

Old Material.—Foundry stock is in rather better demand than any other class of Scrap. Good inquiries are in the market for Stove Plate, and its price is somewhat stronger. Old Car Wheels are in continued demand, and they cannot be had as cheaply as some time ago. Relaying Rails are also a little higher. The leading Eastern railroad companies have put out rather large lists this month. The Pennsylvania Railroad is offering about 25,000 tons of long length Rails, as well as large quantities of other classes of Old Material. Rolling mills are probably able to purchase from railroads at somewhat lower prices than from dealers, who are not inclined to part with their stock at concessions. It is likely, nevertheless, that a considerable part of the railroad offerings will be taken by dealers, to be held until the demand improves. Quotations are about as follows, per gross ton, New York City:

Old Girder and T Rails for melting	$10.00 to $10.50
Heavy Melting Steel Scrap	10.00 to 10.50
Old Steel Rails, rerolling lengths	11.50 to 12.00
Relaying Rails	21.00 to 22.00
Old Iron Rails	14.50 to 15.00
Standard Hammered Iron Car Axles	16.00 to 16.50
Old Steel Car Axles	14.50 to 15.00
No. 1 Railroad Wrought	13.50 to 14.00
Iron Track Scrap	10.00 to 10.50
No. 1 Yard Wrought, long	11.50 to 12.00
No. 1 Yard Wrought, short	10.50 to 11.00
Light Iron	5.50 to 6.00
Cast Borings	5.00 to 5.50
Wrought Turnings	6.50 to 7.00
Wrought Pipe	10.00 to 10.50
Old Car Wheels	13.50 to 14.00
No. 1 Heavy Cast, broken up	13.00 to 14.00
Stove Plate	10.00 to 10.50
Locomotive Grate Bars	11.00 to 11.50
Malleable Cast	12.00 to 13.00

B. Nicoll & Co., Iron merchants, have removed to the Singer Building, 149 Broadway, New York, in which they occupy the entire twenty-eighth floor.

Iron and Industrial Stocks.

NEW YORK, July 8, 1908.

For a quiet week the developments in the stock market have been rather surprising. Values have been steadily advancing, and in some cases prices are now nearly up to the highest point of the year. The opinion prevails that the stock market is anticipating better conditions in general business. The range of prices on active stocks from Thursday of last week to Tuesday of this week was as follows: United States Steel common 37⅞ to 39⅜, preferred 103 to 105⅝; Car & Foundry common 34 to 36¾, preferred 97 to 99; Locomotive common 47¼ to 50½, preferred 101¼, ex-div., to 102; Steel Foundries preferred 36¾ to 37½; Cambria Steel 31⅜ to 32¼; Colorado Fuel 26⅝ to 29; Crucible Steel common 5¾, preferred 40 to 40¼; Pressed Steel common 28¼ to 28¾, preferred 85; Railway Spring common 36⅛; Republic common 18 to 18¾, preferred 66⅛ to 69⅛; Sloss-Sheffield common 51½ to 54⅞, preferred 96½ to 98; Cast Iron Pipe common 21 to 22, preferred 65⅞ to 67¾; Can preferred 54¾ to 55. Last transactions up to 1.30 p.m. to-day are reported at the following prices: United States Steel common 40⅛, preferred 107⅞; Car & Foundry common 37⅜; Locomotive common 50¼, preferred 102¼; Colorado Fuel 29¼; Pressed Steel common 29½; Republic common 18⅝, preferred 68¾; Sloss-Sheffield common 56; Cast Iron Pipe common 22, preferred 66¼; Can common 4⅜, preferred 56¾.

Dividends.—The United States Cast Iron Pipe & Foundry Company has declared the regular quarterly dividend of 1¾ per cent. on the preferred stock, subject to the approval of the court on the stand taken by the directors that the company has a right to divert from its account carried on the balance sheet as reserved for working capital, the funds necessary to pay the dividend. This reserve amounts to $2,459,897.

The La Belle Iron Works, Steubenville, Ohio, has declared a quarterly dividend of 2 per cent. and a stock dividend of 33 1-3 per cent. to be paid out of the surplus earnings. This stock dividend increases the outstanding capital stock from $7,500,000 to $10,000,000.

The Monongahela River Consolidated Coal & Coke Company, Pittsburgh, has declared a semi-annual dividend of 3½ per cent. on the preferred stock, payable July 15.

The Pittsburgh Plate Glass Company has declared a quarterly dividend of 1¾ per cent.

The Harbison-Walker Refractories Company, Pittsburgh, has declared a quarterly dividend of 1½ per cent. on the preferred stock.

Vollkommer & Hagan, 1004 Empire Building, Pittsburgh, have received a contract for rebuilding several open hearth furnaces in the plant of the American Steel & Iron Company, Norwalk, Ohio.

The Youngstown Sheet & Tube Company's Labor Attitude.

It is not improbable there will be a break in the relations heretofore existing between the Amalgamated Association and the Youngstown Sheet & Tube Company, Youngstown, Ohio. This company has always heretofore signed the Amalgamated scales, and when the sheet scale was agreed upon in Pittsburgh last week, it agreed to sign this scale. The men, however, refused to accept it unless the company would also agree to be bound by the decision arrived at in the conference being held this week between the Amalgamated Association and the Western Bar Iron Association. This the company refused to do, with the result that its sheet, puddling and finishing mills are now closed down. James A. Campbell, president of the company, has issued an official statement regarding the trouble, which is as follows:

Anticipating that there might be some difficulty this year in arriving at an agreement with the Amalgamated Association, and being dissatisfied with the arrangement entered into last year with the Western Bar Iron Association and the Amalgamated, because of its manifest unfairness to the manufacturers, we notified President McArdle in a letter dated April 30, 1908, that we would not feel obliged to abide by any agreement arrived at between these two organizations.

During the annual conference, held at Youngstown, President McArdle and Vice-President Williams, together with James H. Nutt, secretary of the Western Bar Iron Association, visited the writer, in order to get a more clear understanding of the position we had taken in our letter of April 30. On the same day, May 15, we dictated a letter to Mr. Nutt, setting forth our position at length, and confirming our statement to President McArdle, and asked him to transmit the contents of this letter to President McArdle, so that we would be on record as to our actual position.

It was not our intention to go into the conference at Cambridge Springs, and we so notified Mr. Nutt, but at his earnest solicitation, our vice-president, Mr. Robinson, attended this conference the short time that it was in session, with the full understanding, however, of the Western Bar Iron Association and the Amalgamated Association that we would not be bound by any agreement arrived at at this conference unless it was satisfactory to our company.

On June 29, the American Sheet & Tin Plate Company agreed with the Amalgamated Association on a scale to be paid sheet and tin plate workers, and we notified our men that we were willing to pay this scale of wages as agreed upon, and sign the scale for our sheet mills, and asked them to work on Wednesday July 1, which our own employees agreed to do. On taking it up later with the officials of the Amalgamated Association, they notified us that they could not sign the sheet mill scale alone or continue working after June 30 unless we would agree to sign a continuous agreement which would bind us to accept any settlement arrived at by the Western Bar Iron Association or the Republic Iron & Steel Company. This we refused to do, because we did not want to obligate ourselves in advance to sign an agreement to pay a scale of wages which might be satisfactory to others but not satisfactory to our company, or to sign a scale in advance until we knew what that scale would be.

We took this position largely because a large percentage of the product of our puddle mill is used in making pipe, and all of our competitors on iron pipe, with the exception of one, employ non-union labor, and as a rule pay a much lower scale of wages than we do, and we did not care to continue the operation of our puddle mill unless the scale of wages presented would put us in position to compete with some profit to ourselves. We did not mean by this that we were not willing to pay considerably more than the Eastern mills, as we have always paid $1 to $2 per ton more, and we believe we can still continue to pay considerably more for labor than they do and compete.

Our men have notified us again this morning that the officials have ruled that they cannot permit our sheet mills to operate even though we are willing to sign the scale agreeing to pay the same price as the American Sheet & Tin Plate Company, unless we also sign an agreement that we will accept any scale of wages agreed upon by the Western Bar Iron Association. We take the position that as our sheet mills are not dependent on the puddle mill for their source of supply of raw material, our sheet bars being furnished by our steel plant, there is no good reason why they should not continue to operate our sheet mills, giving our men employment and permitting us to fill our orders, and as soon as they present us a scale for the puddle mill agreed upon with the Western Bar Iron Association, if it is satisfactory to us, we will promptly sign it. We will not be represented at the Detroit conference this week between the Amalgamated Association and the Western Bar Iron Association.

The Carnegie Steel Company Buys the Schoen Steel Wheel Company.

Negotiations were practically concluded last week by which the Carnegie Steel Company purchased the entire plant of the Schoen Steel Wheel Company, located at McKees Rocks, Pittsburg. This plant was built in 1903 and was first put in operation in November of that year. It contains 10 heating furnaces, two special mills for rolling car wheels from steel slabs and 10 large hydraulic forging presses. The product is pressed and rolled steel wheels for engine tenders, passenger, steam, freight and electric cars, the annual capacity being close to 100,000 tons per year.

About the middle of last year the Schoen Steel Wheel Company placed contracts for the building of four 50-ton open hearth furnaces, and the foundations were built, but the furnaces themselves were never completed. The steel buildings to contain the open hearth plant are partially on the ground, but were not erected. The company is a large user of steel and has been a heavy purchaser from the Carnegie Steel Company.

The new organization has not yet been effected, but will be in a short time. It is understood that the Carnegie Steel Company will very much increase the capacity of the plant, and in the future will be a large factor in the steel wheel trade. The plant was built by Charles T. Schoen, president of the company, who developed his own patents in the manufacture of all steel pressed and rolled car wheels. It is equipped with a very large amount of special machinery for this purpose, most of which was designed by Mr. Schoen. The Carnegie Steel Company has taken possession of the plant, the formal transfer having already been made.

The Carnegie Steel Company has been experimenting for some time with the Slick process of making steel car wheels at the Homestead plant, and it is understood that these experiments will still be carried forward.

Milliken Brothers' Reorganization.—The receivership of Milliken Brothers, Inc., New York, has been extended by the court to August 1. There is an expectation that by that date some definite plan of reorganization will be submitted, but it is not in shape for announcement at this time. Between June 10, 1907, when the receivers were appointed, and June 26, 1908, when their last report was made to the court, the output of fabricated steel from the works on Staten Island was 33,800 tons. In the year preceding the receivership the company shipped 34,670 tons on contracts, besides furnishing 3464 tons for the erection of its rolling mills, then under construction. Considering the condition of general business in the past year the scale of operations under the receivers will be seen to compare favorably with that in the preceding year. On June 26 the receivers had on hand $531,973. Accounts and notes receivable were $159,619, against accounts payable of $83,461. The interest on outstanding bonds has been met regularly and no receivers' certificates are outstanding.

The American Bureau of Inspection and Tests, Monadnock Block, Chicago, is distributing a pocket size specification pamphlet. It contains the specifications and sections for steel rails adopted by the American Railway Association in April, 1908, and the specifications for steel rails and splice bars adopted by the rail manufacturers in November, 1907. In addition, are included the specifications for first and second quality relaying rails drawn up by this bureau several years ago.

The report of the American Railway Association shows that the number of idle freight cars in the United States and Canada on June 24 was 312,847, or 36,720 less than the number reported on June 10. This is the fourth decrease in two months, the maximum number of idle cars, 413,338, being reported on April 29. The reduction in a period of a little less than two months is thus 100,491, or nearly 25 per cent.

Canadian Trade Prospects.

TORONTO, July 6, 1908.—Canada is on the eve of what promises to be a magnificent harvest, which is expected to usher in a very interesting trade situation. A large harvest with grain prices good would mean a large buying power, and that ought to mean general prosperity for the country. But to mean general prosperity for the country there must be on the side of Canada's manufacturing industries a selling power to match the large buying power on the side of the farmers. At present it appears extremely doubtful that the manufacturing industries will have output enough to meet the home demand that will begin to open up perhaps voraciously two months hence. What the chances are on this point may be roughly reckoned after a summing up of the conditions that now present themselves under the two heads of agricultural production and manufacturing production.

In the Canadian West, which term is usually understood to comprehend the three prairie Provinces—Manitoba, Saskatchewan and Alberta—a wheat crop estimated at not less than 125,000,000 bushels is coming on. If the total yield comes up to the estimate, the crop will be nearly 50 per cent. larger than that of any former year. Other grains, especially barley, show excellent prospects, and in all the average is from 20 to 25 per cent. greater than it was in 1907. In Ontario the harvest outlook is equally inviting. But the harvest is no longer the only season of money making for the Canadian farmer. In Ontario and Quebec the grass crop is the largest source of agricultural revenue. This year there has been ample moisture, and the meadows will yield a great tonnage of hay and clover. After providing for the needs of swarms of live stock—to be fed for the market—the farmers will have a material surplus of hay to sell. But their marketable hay and their marketable live stock are not all the farmers get from the grass crop. They obtain from it their immense dairy output as well. Of that the export value in the present year cannot be less than $30,000,000, for the butter sales are now going up, and in a few years may become as important as the cheese sales. It is unnecessary to go further into conditions to show that the farmers will be likely this year to have far more money than they had in the most prosperous year of their past. It is not to be forgotten, however, that not all their money will be available to them as buying power. Farmers in Western Canada have debts to pay, most of them a consequence of too much eagerness in land buying. But, after all allowance is made on this account, there is certain to remain in their hands money enough to maintain a great market demand—that is, unless something happens to cut down the abundant fruition, the crops and promise.

It is calculated that the assistance of 25,000 hands from Eastern Canada will be required to take off the Western harvest. This large auxiliary force will be needed notwithstanding that the West has now important towns and cities of its own in which there must be a large volume of surplus labor waiting for the wages of the harvest. But if there has been depression in Western centers of manufacturing industry, there has also been slackness in Eastern towns and cities. There the ranks of the unemployed, while materially reduced from their footing of last winter, are still far from being wiped out. The factories in Eastern Canada are more active than they were two months ago, but if they are to have ready by the fall all the goods they can sell they will have to get more plant to work. That the manufacturers of Canada are not now in the full heat of their operations is not due to want of confidence on their part. They are generally convinced that there will be a very capacious market awaiting their goods, but they can prepare for it fully only with the co-operation of the banks; that co-operation, up to the present, is by no means unreserved. The banks are dispensing credit more liberally than they were in the late autumn, throughout the winter and during the greater part of the spring, but they are nothing like the generous helpers they were through the four or five years ending a twelvemonth ago. During that period they perhaps allowed their optimism to carry them too far. In some cases they anticipated the success of pending operations and allowed some large customers to contract a large floating indebtedness to them. In other cases their assistance was more in the way of really furnishing capital than of making advances upon output. From the former tendency to excessive faith in the situation, the banks have changed to one of great caution. They are sparing of their aid, even to strong concerns. This is due not altogether to a change of spirit, but to some extent to financial consequences of the former overconfidence. They are still carrying many accounts that ought to have been liquidated last year. In one sense the money pinch of last fall is past, but much of the indebtedness which produced that pinch is still unpaid. Until the banks have cleared up most of the business they had to tide over they will be averse to venturing out strongly on a new campaign. Last winter was a bad one for mercantile trade. The goods purchased in the early autumn were still largely in retailers' and wholesalers' hands when spring came, and most of the money furnished to buy them was owing to the banks.

If money is not forthcoming in free supply, there will be a deficiency of output from Canadian factories. That is, some of the farmers' buying power will have to be turned to sources outside of Canada to obtain all the commodities required. In such a situation even a very high tariff would not prevent a large importation of merchandise. The main need of Canadian manufacturing industry in the coming autumn will not be an adequate home market, or adequate tariff protection, but an adequate supply of funds. There may be a sudden loosing of the purse strings on the part of the banks, one timely enough and considerable enough to enable Canadian manufacturers to make their productions commensurate with that of the farmers. If there is no such change, then Canada will import more goods in the present crop year than she ever imported before.

C. A. C. J.

The Triumph Electric Mfg. Company and Triumph Ice Machine Company of Cincinnati, whose contemplated mammoth plant in the new Oakley suburb of that city was temporarily delayed because of the business depression, have ordered the work to proceed on the lines originally planned. At a recent meeting of directors matters were settled, and the firm of Bert Baldwin & Co., engineers, was given the commission to prepare plans at once. The buildings will be of steel construction, with concrete or brick walls. The principal structure is to be 140 x 300 ft. The Administration Building will not be built until the others are completed and in use. It is the intention to devote the winter and early spring months of next year to the building of the plant. The investment will represent an expenditure of $250,000. The officers of the company will encourage their employees in buying property in the vicinity of the plant, and are now improving a large number of building lots with that object in view. Some new ideas in the way of dining rooms, cooking equipment, &c., for employees will be tried, and if they prove satisfactory and are appreciated by employees will be made a permanent feature.

The Midland Steel Company, Pittsburgh, which blew out its blast furnace at Midland, Pa., several weeks ago, is making some improvements as well as repairs. New dust catchers are being installed, the contract for which has been placed with the Pittsburgh Steel Construction Company, and changes and improvements are being made in the steam and water lines. These will be completed in time to allow the furnace to resume operations in the latter part of July or early in August.

Some important changes and additions are being made at the Bessemer steel plant of the Republic Iron & Steel Company, at Youngstown, Ohio, which has closed down for the purpose. In the sheet bar and rail mills two new stands of rolls will be erected, with the object of rolling longer lengths. New tables are to be put in and shears will be added to cut the bars, which heretofore have been sawed. These improvements will add somewhat to the capacity and are also expected to reduce labor cost.

The Machinery Trade.

NEW YORK, July 8, 1908.

The coming into the market for large quantities of machinery by several of the more important industrial companies within the past few weeks, which number was further augmented the week just ended, indicates that confidence is being restored and that a more optimistic feeling as to the near future prevails. This large business, however, is insufficient to go around, and, in fact, does not amount to enough to more than show a slight improvement over the previous month's business of the few large tool builders that secured the orders, there being so little buying on the part of the smaller plants. The activity by the large interests is bound to have a beneficial effect and ought to be followed later by more liberal purchases by the smaller companies. A large machine tool builder states that its business has gradually improved the last few months, but the increase has not been what was expected. With the others, this house is looking for a marked improvement in the fall. The dealers whose sales territory is limited, and consequently are not in a position to supply many wants, report practically no improvement in their business. Since our last report, trade has been very light, due in part to the holiday. Of the inquiries received one was from the International Steam Pump Company for an extensive line of machine tool equipment.

It is understood among machinery men who are familiar with the work on the Panama Canal that a redivision of the operations along the canal has been made and the work will now be done in three sections, consisting of the Atlantic division, Pacific division and the central division. The Atlantic division will be under Division Engineer Major Seibert, and Major Harding as assistant. The work will include the Gatun lock and dam site and the work at the Portobello quarries, and all terminal and dredging work on the Cristobal end of the canal. The central division will be under Division Engineer Major Gaillard, and this will include all steam shovel work on the present Gorgona and Culebra divisions. The engineer to have charge of the Pacific division has not been announced, but it is said in some quarters that Sidney B. Williamson will be given charge. This will include work on the Miraflores locks and dams and all terminal work on the Pacific end at La Boca. This is taken as an indication that it is the Government's intention to centralize work on the canal as far as possible and a number of departments have been abolished. It is said in the trade that with the reorganization will come renewed activity in the way of machinery purchasing, especially in the line of equipment for the large amount of lock and dam work to be done.

Large Machine Tool Requirements of International Steam Pump Company.

Inquiries for a large amount of machinery are being sent out by the International Steam Pump Company, 115 Broadway, New York, through the purchasing department. The company is planning to increase the efficiency of its various plants by the installation of new and improved machine tools, and it is stated that the requirements will cover tools aggregating $100,000 in value. As all the requisitions from the various plants have not been received, the complete list of requirements has not been made up and the purchasing agent is sending out a few inquiries at a time. Thus far machinery houses have only received inquiries for a small part of the machinery that will be purchased. It will be remembered that the company erected a new plant at Harrison, N. J., a couple of years ago and moved the plant of Henry R. Worthington from Brooklyn to that point. It is understood that considerable of the machinery to be purchased will be installed in this plant. Machine tools will also be purchased for installation in the works at Holyoke and Cambridge, Mass., and probably some for the Snow Steam Pump Company's plant at Buffalo, N. Y.

Last week mention was made of the extensive line of equipment to be purchased by the American Locomotive Company for its Pittsburgh shops and that some orders had already been placed. The company, we understand, has now practically covered its requirements, having placed an order with the Niles-Bement-Pond Company for machine tools amounting to about $230,000. The entire machine tool equipment for the new shops of the Idaho & Washington Northern Railroad at Spirit Lake, Idaho, the purchase of which, through Westinghouse, Church, Kerr & Co., was also mentioned in these columns last week, will also be furnished by the Niles-Bement-Pond Company. The order amounts to $30,000 and covers a complete machine shop equipment. Other orders received by the company include one from St. Louis, Brownsville & Mexico Railroad for $20,000 worth of machine tools, and one from the American Sugar Refining Company for electric hoists, aggregating $25,000 in value, for the New Orleans plant. The placing of these large orders by important interests is of more than ordinary interest at this time, in that the purchasing of larger companies is often followed by freer buying on the part of small companies and is an indication of an early resumption to a more normal business. For some time inquiries and orders in this territory have covered principally a few tools each and came from the smaller plants, but recently the larger corporations have shown more disposition to come into the market.

It is understood that the construction of the new cut-off of the Delaware, Lackawanna & Western Railroad between Lake Hopatcong and the Delaware Water Gap will begin at once, and because of the large amount of excavating to be done it is expected that the contractors in charge of the seven sections will have to buy a large amount of equipment. The engineers in charge estimate that about 250,000 cu. yd. of concrete will be constructed, of which 50,000 cu. yd. will be of reinforced work. The work also includes the building of a steel bridge 1200 ft. long across the Delaware Water Gap. On the entire job there will be 12,000,000 cu. yd. of excavation, of which 5,000,000 cu. yd. will be through solid rock. Most of this rock excavating will be in sections 1, 2 and 3, and this work will no doubt necessitate the purchase of a considerable lot of rock drilling equipment. The contractors in charge of those sections were mentioned in these columns last week. On sections 3 and 4 there is a fill that will require about 6,000,000 cu. yd. of earth, and in consequence it is expected that considerable industrial railway equipment will be used there. It is understood that some of the contractors are already assembling their plants and preparing to begin work very shortly.

The Crescent Portland Cement Company, Wampum, Pa., is letting contracts for machinery for the large plant being constructed for that company by the Curtin-Ruggles Engineering Company, 39 Cortlandt street, New York. The contracts were let last week for three 1000-kw. cross compound engines to the Ball & Wood Company and for three 6000-hp. boilers to the Rickert Engineering & Machine Company. It is understood that the contracts for the cement machinery will be let within the next few days and by the end of next week all the machinery equipment will be decided upon. The plant when completed will be capable of producing about 3000 bbl. of cement a day, and the structures to be erected include a kiln building, 120 x 200 ft.; raw grinding building, 100 x 280 ft.; dry grinding building, 60 x 240 ft.; coal pulverizing building, 70 x 100 ft.; storehouse, 70 x 500 ft., and a machine shop and office building.

The Public Service Corporation of New Jersey is arranging to erect a terminal at Hoboken at a cost of $500,000, and work will be begun on the structure in September. The building is to be of brick, concrete and ornamental limestone, and will be three stories in hight. This structure, plans for which are now being prepared, will connect with the McAdoo terminal in Hoboken, and it is probable that the machinery trade will hear of requirements for this building before the summer is over. The Public Service Corporation has let contracts for the generators and boilers to be installed in the addition to the company's Marion power plant, mentioned before in these columns. The General Electric Company will furnish two 900-kw. turbo-generators and the Babcock & Wilcox Company will install the boilers. It is expected that contracts for other equipment will be let shortly. James T. Whittlesee is the chief engineer, and he, it is understood, is directing the purchases, and the contracts are being placed by Dudley Farrand, who has offices in the Prudential Building, Newark, N. J.

The Department of Water Supply, Gas and Electricity, New York, will receive bids until July 15 for a pumping engine and accessories for the Mt. Prospect pumping station, Brooklyn, and one hand traveling crane for the high pressure pumping station at Gansevoort and West streets and one hand traveling crane for the high pressure pumping station at Oliver and South streets, New York.

The Washington Company, 39 Cortlandt street, New York, is installing two complete steam plants, one of 100 hp. for the Levison Mfg. Company, New York, and another at Edgewater, N. J., for a manufacturing firm and which will be of 150 hp. capacity.

Business Changes.

The Case Mfg. Company, Columbus, Ohio, manufacturer of electric and hand power cranes and hoists, has appointed A. E. Hoermann, mechanical engineer, 30 Church street, New York, manager of its New York office. Mr. Hoermann is at present Eastern manager of the Curtis & Co. Mfg. Company, in which capacity he will continue.

Catalogues Wanted.—Miles A. Hoffman & Co., 43-45 Great Tower street, London, E. C., England, desire to receive catalogues from manufacturers of goods suitable for the English market.

Chicago Machinery Market.

CHICAGO, ILL., July 7, 1908.

Transactions of the past week in machinery lines have been mainly confined to small requirements, the aggregate of which has not perceptibly increased. It is too early to determine if the general expectation of more liberal purchases by the railroads will be realized in the present month, but the general belief that demand from this source will show considerable improvement before the first of August is unabated. The action of the railroads is naturally being watched with a great degree of interest, because it is realized that as soon as they begin to buy the machinery trade will be both directly and indirectly benefited. Individual tool orders are about all there are in the machine tool market, and while business of this kind is highly desirable, the trouble is that there is not enough of it to go around. Such a condition is at all times sure to invite unduly sharp competition, which in turn is apt to have a disturbing effect upon prices. That considerable unevenness has developed is evident from the range of prices disclosed on recent bids by dealers, which in some instances are quite low. At the same time it does not appear that factory prices have been affected in like manner; in fact, they are reported to be generally firm, with only a few makers disposed to yield anything from established schedules. While the machine tool business is far from satisfactory in volume at present and will probably not respond as quickly to the effects of general improvement as many other industries, yet most dealers feel that the beginning of an upward turn is not far distant.

In electrical machinery a somewhat better movement is observed, which, though not as yet of a pronounced character, is the basis of a stronger tone and a more optimistic feeling among manufacturers of generative and motive power equipment. During the past few months plant managers have not only had time but urgent need as well for the study of economics, and a good many are taking advantage of the opportunity to make changes that promise a reduction of operating expenses. The advantages of the unit system as applied to motor drives has been especially emphasized in plants working at only part capacity, as is shown by the increasing interest manifested in such equipment by mills and factories in which it has hitherto been in little demand. Flour mills, for instance, are gradually awakening to an appreciation of motors as a substitute for belt drives and orders from this source are not now infrequent. Another feature in connection with the demand for electrical equipment is the relatively large proportion of orders coming from central lighting stations. During the period of depression that followed the panic of 1893 no industry was harder hit than this, but the reverse is now true. The only explanation offered is that what was under the conditions of that time a luxury has become a necessity, and so escapes in a large measure its share of curtailment due to enforced economy.

The Eclipse Feed Water Heater & Purifier Company, Oshkosh, Wis., which is now having its machines built at Wausaw, Wis., contemplates the building of a plant for the manufacture of its product at Oshkosh in the course of the year. The company builds the Eclipse heater in both open and closed types. It is now installing a purifier of large capacity in the power plant of the Blatz Brewing Company, Milwaukee.

To provide funds for extension and improvement of its plant and enlargement of its field of operations the Termaat & Monahan Company, Oshkosh, Wis., has increased its capital stock from $50,000 to $200,000. This step was made necessary by the growth of its gasoline locomotive business; these machines are now being extensively used in mining and gravel pits and railroad work. The marine engine department, which, it is stated, now turns out 1000 marine engines during a year, will also be enlarged. It is likely that the execution of these plans will involve the need of some new tools and machinery.

The Chicago Board of Education is now working on manual training school plans which will in the next two or three months develop machinery requirements of considerable importance. While the amount of the machinery required for the proposed installation will perhaps not be as extensive as those of the recently equipped Lane School, they will comprise quite a number of machine tools such as were included in that list. Bids close July 8 for the following equipment to be installed in various high schools: Forty-two 4-in. standard speed lathes, belt driven; seven 37-in. motor and belt band saws and eight power grindstones. A lot of miscellaneous electric supplies will be purchased at the same time.

The Straubel Machine Company, Green Bay, Wis., recently incorporated with a capital stock of $25,000, is to enlarge its business and will build a modern plant on property recently purchased. Plans provide for a machine shop 60 x 100 feet, one story high, with saw tooth roof. It will have a concrete foundation and be constructed of brick and steel trusses of its own manufacture. The officers of the company are Louis G. Straubel, president; Ernest C. Straubel, secretary and treasurer; Edwin Straubel, vice-president.

A site has been purchased by the Mitchell Power Company, Mitchell, S. D., for the erection of a power plant, the cost of which is estimated at $50,000. Construction of a power house will be begun at once, and it will be supplied with modern machinery and equipment throughout, part of which will be taken from the present plant. In addition to this improvement a considerable sum will be expended for the rebuilding of transmission lines.

The city of Stillwater, Okla., will soon ask bids on two direct connected a. c. generating units of 60 and 90 kw. capacity respectively; also on cast iron pipe and specials for water works extension. About $7000 will be expended for extension and improvement of the electric light system, $33,000 for like improvements to the water works system and $27,000 for the construction of public sewers.

The Georgetown Water, Light & Power Company, Georgetown, Texas, has under consideration some plant improvements which include the installation of a new engine which would be either of the producer gas type or an oil heated engine. The company will also purchase some new wire and pipe.

The Cutler-Hammer Mfg. Company, Milwaukee, Wis., maker of electric controlling devices, has just completed arrangements whereby it will be represented on the Pacific Coast by Otis & Squires, 111 New Montgomery street, San Francisco. A large stock of standard Cutler-Hammer controllers will be carried by Otis & Squires, enabling them to make prompt delivery of apparatus. A. W. Vinson, who has for several years been connected with the engineering department of the Cutler-Hammer Mfg. Company, has been transferred to the office of Otis & Squires, where his services will be available to those confronted with problems of electric control which cannot be met by the use of standard apparatus.

Cincinnati Machinery Market.

CINCINNATI, OHIO, July 7, 1908.

While it is difficult to find enough current business in machine tools and allied lines to justify a statement that business in this character of machinery is improving, there are enough hopeful signs extant to warrant the wearing of an optimistic exterior, and that is just what the big manufacturers in this field are doing. Visits to shops find office forces busy with correspondence, and as a rule from a third to a three-quarters payroll on time ranging from 30 to 45 hr. per week.

The tool manufacturing shops are still the least busy. The timid awakening of a few of the railroad corporations for the taking on of some badly needed shop equipment is obvious here only in the promise, and as a rule heads of large concerns are not looking for anything of consequence before the first of the year.

Manufacturers of electric equipment are busy and taking on additional help from time to time. Boiler makers, too, are noticing a little better feeling, and it is evident that power units are being increased. A visitor from the East, Clifton Reeves of the Reeves Engine & Machine Company, Trenton, N. J., finds sufficient evidence of advantage in the matter of manufacturing and sales capacity to warrant the announcement that he would locate in Cincinnati, and on July 8 a meeting of local capitalists and financiers will discuss the matter of incorporation and stock subscription at the Business Men's Club. The greater part of the business for high speed engines, throttling engines and for motive power of the medium class has of late come from the South and Southwest, and manufacturers of these types find the Central West territory best adapted for their operations.

Manufacturers of engineers' specialties report business improving, particularly from Texas and Mexico and the Southwest. Local establishments have shipped some large bills of brass goods for use in Government work in the Canal Zone. Signs of resumption of activities outlined at the time of the slump last October in connection with the new factory colony at Oakley, Cincinnati suburb, are reviving. The new power plant which is eventually to drive the machinery of the Cincinnati Milling Machine Company, Bickford Drill & Tool Company, Cincinnati Planer Company, Triumph Electric Company and the Triumph Ice Machine Company is completed and one unit installed—a Hamilton Corliss compound engine of 450 hp. and a Triumph generator of 300 kw. speeded to 100 rev. per min. Provision is made in the building for 2000 kw., which will eventually be installed when the four establishments named get into their new quarters. At present the power is only utilized for the various operations at the Modern Foundry, the enterprise of the Cincinnati Milling Machine Company, which is destined to take care of all the castings at this plant as

well as others forming a part of the new group. In this foundry are installed very new and complete systems of compressed air, hot and cold water pumps, and a splendid tower for an improved sprinkler system.

A fairly good business is reported from the dealers and some of the larger and more expensive tools are getting attention, something practically unheard of during the earlier months of the year. There is not so much inquiry for second-hand tools, from which is argued favorable symptoms and better attention for the new tools.

The foundry melt continues light. Those concerns running more than three moderate sized heats per week are very few. This applies more strictly to the Cincinnati foundries which for the most part find their patrons in the manufacturers of machine tools. Some foundries making small castings for cash registers and similar devices are quite up to their normal output and have not noticed the recent depression.

The Iron Buyers' Association, comprising a membership of several hundred influential manufacturers in the Central West, is now under the general direction of a new president, G. H. Gorman of the Davis Sewing Machine Company, Dayton, Ohio, and it is understood the organization will be continued and perfected until the objects for which it stands shall, at least the most of them, be obtained. It is stated that some contracts have been made by members with the furnaces using a slight modification of the printed form authorized by the association. A number of furnaces have, it is understood, refused to use any other than their own form for the making of contracts for iron.

It is stated that work is to begin shortly on the erection of a large plant for the Federal Castings Company in Vincennes, Ind. The company incorporates with a capital stock of $250,000, and the directors are Henry C. Atkins of Indianapolis, Ind.; Sidney Smith of Louisville, Ky.; George P. Altenberg, Cincinnati; C. Brooks Buckley and George S. Cotter, Springfield, Ohio; Lee Herman, Muncie, Ind.; Henry C. Price, James C. Curtis and William Hecht, Indianapolis, Ind. The company will manufacture all kinds of metal castings, and will build a variety of railroad, industrial and mining cars and all parts and appliances, and also tools and appliances used in railroad machine shops. The buildings are to be in the beginning two in number, one 100 x 300 ft., the other 50 x 240 ft., with concrete foundations and superstructure of brick and steel. The agreement with the Vincennes people also contemplates the duplication of the two buildings within three years, and an investment of $70,000 over and above the $30,000 bonus in buildings and equipment.

A new company for the manufacture of stoves and ranges and for the conduct of a general stove foundry business is the Conklin Stove Mfg. Company, Columbus, Ohio. The capital to start is $35,000, and the incorporators are J. W. Hastings, E. A. Evans, F. M. Haberkorn, Patrick Carroll and Barbara Haberkorn.

Reports from Newcastle, Ind., indicate that the Indiana Rolling Mill Company has resumed work with a full force and will run day and night shifts as formerly. Other Newcastle concerns reported busy are the Maxwell-Briscoe Automobile Company, which is running full time, with some overtime, and building an extensive addition, and the Pan-American Bridge Company, which is running full force and on full time.

New England Machinery Market.

WORCESTER, MASS., July 7, 1908.

Figuring the totals of the first six months of the year and comparing them with those of 1906 and 1907 have not been a particularly cheerful task, for there is a very wide difference, both with the machinery dealers and with the builders. But the element of cheer is that the depressed months are accumulating as a part of the past, and that the worst is about over, according to common opinion. Few orders have been booked during the week; it has been so fearfully hot that probably there would have been little business under any conditions of the market. General business seems to be better, according to the reports of the transportation companies and individual knowledge of existing industrial conditions. The machine tool trade does not expect to feel a revival until after most other lines have picked up, but it is believed a gradual improvement will be noticed in the fall.

The automobile trade continues to indicate that its preparations for next season will be on a larger scale than that which was adopted for the 1908 market. The manufacturers are making numerous inquiries for machinery, and some tools of rather a special design have been sold during the past fortnight. There is said to be more activity on the part of the railroads looking toward new machine shop and similar equipment, but there have been few tangible evidences of immediate buying in the way of orders.

Machine tool production has been further curtailed by the shutting down of plants. In Worcester, for example, the works of the F. E. Reed Company, engine lathes; Woodward & Powell Planer Company, planers, and J. E. Snyder & Son, upright drills, are closed. The Prentice Bros. Company is still running, but will probably shut down soon. The Whitcomb-Blaisdell Machine Tool Company and the Norton Grinding Company are running. Most of the smaller companies are operating on reduced production. The F. E. Reed Company will not resume operations again for a month, the protracted vacation being utilized for making extensive repairs. The company's former custom was to close for the purpose, 10 days every summer, but it is now five years since this was done, and there is need of overhauling. The main lines of shafting will be lined up, and new floors laid in parts of the works.

The business of the Becker-Brainard Milling Machine Company will hereafter be conducted as the Becker Milling Machine Company, a new corporation of that name having been organized to purchase the business. John Becker will continue as its head. The name of the Becker-Brainard Milling Machine Company originated in 1899, when the business of the Becker Milling Machine Company, Fitchburg, Mass., and that of the Brainard Milling Machine Company, Hyde Park, were consolidated. Consequently the new name is a revival of one which was formerly very well known in the trade. Details of the organization of the new corporation are not available, but it is understood that the personnel of the officers will remain much the same as in the Becker-Brainard Company. The name of Brainard disappears.

The Powell Tool Company, Worcester, Mass., of which A. M. Powell is the founder and the head, has completed the first of its line of planers, and is demonstrating it in its shops. The planer is of an entirely new type, containing features essentially different from those embodied in any planer previously built. It is known as the Powell high speed accelerating cut planer. The feature of acceleration is the essential one in the design. The mechanism provides that the machine may be operated with a cut of constant speed during its entire length, or with the acceleration, which means that the tool starts in the work slowly, the speed is then greatly increased, and the cut slows down again as the finish of the stroke is approached. The theory is that the great consumption of power in high speed planer work is in the start of the cut, and consequently that a much higher cutting speed is practicable if the tool enter the metal at a low speed, and is given an accelerated speed after momentum has been achieved.

The Heald Machine Company, Worcester, has established W. P. Starks as its special Western representative, the purpose being to have a man in the field who will devote his entire time to the introduction and sale of the company's line of grinding machinery, working in co-operation with the dealers. Mr. Starks was formerly with the O. L. Packard Machinery Company, Chicago. He will make his headquarters in his home town of Crawfordsville, Ind.

The Everett Foundry Company, Everett, Mass., is establishing a machine shop for the finishing of castings.

George W. Fifield, Lowell, Mass., manufacturer of machine tools, has taken out a building permit for his new machine shop already mentioned in these columns. The building will be of fireproof construction.

William T. Cardy & Sons, Boston, box manufacturers, have prepared plans for a new factory to replace that destroyed in the Chelsea fire. The building, as described, will be of reinforced concrete, 50 by 100 ft., and three stories, and there will be a one story boiler house.

A case of much importance to New Hampshire manufacturers and other shippers of that State has been brought by the State against the Boston & Maine Railroad, alleging that increases in freight rates are illegal in that they constitute a violation of the laws under which various local railroads were merged in the Boston & Maine system. The contention is that schedules existing on some lines as long ago as 1883 are still the legal limit of rates, and others go back to 1889. Should the contention hold there would be an important change in freight rates all over the State.

The Remington Arms Company, Ilion, N. Y., states in regard to the persistent rumors regarding the removal of the business to Bridgeport, Conn., that there has evidently been a mistake, as no such action is anticipated at present.

The C. G. Garrigus Machine Company, Bristol, Conn., builder of special machinery, has let contract for its new shop building, which will be 37 x 75 ft., and three stories, with one-story ell, 10 x 35 ft. It will be of brick, mill construction.

The receivers of the Pope Mfg. Company, Hartford, Conn., have received the permission of the court to proceed with the manufacture of 700 Pope-Hartford automobiles and 50,000 bicycles, which insures the activity of the works at Hartford and at Westfield, Mass.

Cleveland Machinery Market.

CLEVELAND, OHIO, July 7, 1908.

The past week has been an unusually quiet one among machine tool dealers, orders for single tools even being very scarce. The majority of the dealers find that their June sales were a little larger than during the previous month and the general feeling regarding future conditions is somewhat better, although dealers are looking for two dull months during July and August. At present scarcely any inquiries are coming in and none of those that are being received is for more than one or two tools. While there is practically no demand for the standard machine tools, such as lathes, planers, drills and milling machines, there is a fair demand for forging, stamping and special machinery. There is not much demand for second-hand tools, but not many are being placed on the market, and owners having any for sale are holding them for good prices. Owing to the greater activity on the part of many manufacturing plants there is considerable improvement in the demand for mill supplies, but orders are for much smaller lots than they are in normal times.

The majority of the local machinery and machine tool builders report quite a satisfactory increase in the volume of their orders. They have been able to increase their working forces and they regard the outlook as encouraging. Inquiries are better, and are more apt to be followed by the placing of orders than they were during the early part of the year. Inquiries are now coming from concerns that rarely make inquiries unless they are about ready to place orders. Among the buyers who have not been in the market for some time are the agricultural implement makers, some of whom have placed orders for new machinery during the past few days.

While there is little work in sight in the way of erecting new plants, engineering firms report considerable improvement in inquiries from those that have under consideration plant additions and alterations. This work, it is expected, will cause an increase in the demand for special machinery. Other plants are waiting until conditions become normal before adding to their equipment. A number of the automobile makers in this city and the Central West are expected to overhaul and make additions to their plants during the next few months, some of them already having plans under way for increasing the efficiency and capacity of their plants. Some old tools will be thrown out and replaced with new ones. There is an improvement in the demand for industrial cars and other equipment needed in improving various industrial plants.

The jobbing foundry business, which has been very dull for several months, with only an occasional spurt of activity, at last shows a certain improvement, particularly in the demand for light castings, and the majority of the foundries have been able to increase their force of workmen.

The Board of Education of Cleveland will receive bids until July 17 for the small tools for the machine shop and woodworking equipment for the new Technical High School that is being erected in this city.

The Atlas Car & Mfg. Company, Cleveland, has just secured a large order through Marcellus Reid, mechanical engineer, for an industrial railway and equipment for the Oldsmobile Motor Works, which will make some extensive improvements to its automobile factory at Lansing, Mich. The order includes a number of cars, switches, tracks, storage battery locomotive, and 12 special crane cars for handling material in the shops. A new method of handling material with cranes on cars that can be moved about the plant will be adopted. The company reports a fair volume of orders and inquiries for industrial cars.

The Foote-Burt Company, Cleveland, maker of radial drills, bolt and nut machinery, &c., reports a very satisfactory increase in its business, and the prospects are regarded as good for further improvement. The low point in amount of work was reached by this company in February. During the next three months there was an increase of about 30 per cent. each month over the preceding month. The increase in June reached 50 per cent. over May. The company's plant is now running on full time with slightly over one-half of its full working force. Orders are scattering, none of them being large ones. The company is getting a fair volume of orders from automobile builders.

The Acme Machinery Company, Cleveland, maker of bolt and nut machinery, reports a satisfactory increase in the volume of its orders and inquiries. Its plant is now running at about 75 per cent. of its full capacity. The company has recently received some good orders for machinery from the agricultural implement makers and is getting a fair volume of foreign orders.

Extensions will be made to the plant of the Shelby Electric Company, Shelby, Ohio, according to reports from that city. The main building will be enlarged and a power building, 50 x 100 ft., will be built, in which will be installed a battery of water tube boilers, two direct connected steam turbine engines, each of 200 hp., and five gas generators.

The Commercial Mfg. Company, formerly located at 1967 East Fifty-fifth street, has moved to larger quarters in the power building at 1144 West Third street, Cleveland. The company makes a bending machine, and is preparing to place on the market a new bar cutting machine.

Philadelphia Machinery Market.

PHILADELPHIA, PA., July 7, 1908.

The local machinery trade has felt the effect of the usual midsummer stock taking and shutting down of plants for repairs, as well as the vacation period. Under the circumstances, therefore, no particular attention has been paid to the let-up in business, and not much in the way of a renewal is expected until later in the month. The undertone of the market is strong, and it is pretty generally believed that probably by August 1 a moderate, slow improvement in buying will be noted. The railroad outlook is considered more hopeful. There has been some scattered buying on the part of some of the roads, sufficient to make the trade feel that they are getting in shape to place more business before a very great while. The opinion is generally expressed that extensive buying will be necessary before the railroads can get their rolling stock and motive power in shape to handle the heavy crop movement, which from present reports is pretty well assured.

Manufacturers' reports vary as to the volume of new business taken in the month of June. With some there was an increase in orders to be noted, but others report that the month was not as good as the preceding one. Those manufacturing the medium class of tools were perhaps the most active, as orders for heavy tools have not been very plentiful. Special tool builders have not taken on as much business as some lines, but still have a fair number of orders on their books. Here and there a plant is to be found which is working pretty well up to its capacity; these, however, are mostly of the smaller size, as the large plants have not usually been able to get much beyond 50 per cent. of their normal capacity, while some still fall below that figure.

While there has been a falling off in the demand for second-hand machine tools in the past week, the decreased activity is believed to be due to the same causes which have affected the machine tool trade generally. Notwithstanding the holiday, however, a fair amount of business is reported. It has been in the smaller tools, sales being largely of an individual character. The second-hand boiler and engine trade has been quiet, reflecting the general condition of the trade. New power equipment, particularly of the medium type, seems to be a trifle more active, and while there have been no large contracts given out recently, it is understood that several are under consideration, including a considerable amount for the proposed new plant of the Curtis Publishing Company in this city.

New business has been rather quiet in the foundry trade. Orders have not been plentiful, although some of the steel casting plants report a better demand. The jobbing gray Iron foundries report only a fair amount of orders, while those making a specialty of machinery castings report no permanent improvement. There has been a little more municipal work around for both iron and bronze castings, and an award is expected to be made in a few days for some $18,000 worth of work of that class.

The Energy Elevator Company, 214 New street, this city, is in the market for a McCabe double spindle lathe, second hand preferred. This company reports business in fairly good shape, although orders are not as plentiful as they were several months ago. The company, however, is still able to maintain operations in its plant on a full time basis.

The Franklin County Commissioners, Chambersburg, Pa., have decided to establish an electric light plant at the County Infirmary.

The employees of the Philadelphia Roll & Machine Company on July 2 presented their general manager, August Marx, with a handsome leather club traveling bag, completely fitted, as a token of their appreciation, on the occasion of his trip abroad for a sojourn of a few months.

The commission to erect a State Hospital for the Criminal Insane, for the Commonwealth of Pennsylvania, at Fairview, Pa., will receive proposals pertaining to the erection of certain groups of buildings, until July 21. Plans and specifications may be had upon payment of fee, at the office of the architect, J. C. M. Shirk, 518 Philadelphia Bank Building, Philadelphia. Proposals are being received by H. G. Ashmead, secretary of commission, Chester, Pa. The buildings on which proposals are now asked are designated as wards B and C, of the men's department, and are estimated to cost $150,000. The entire group of buildings will cost over $1,000,000, and will include both men's and women's departments. In addition to the usual ward buildings there will be a power plant, boiler house, fuel storage plant, laundry plant, work shop and refrigerating plant.

Government Purchases.

WASHINGTON, D. C., July 7, 1908.

The Bureau of Supplies and Accounts, Navy Department, Washington, will receive bids until July 21 for a traveling crane, 12 hydraulic jacks, &c., for the Portsmouth and Boston navy yards, and until August 4 for one auxiliary hoist for crane and one induction motor for the Mare Island Navy Yard.

The Bureau of Yards and Dock, Navy Department, Washington, will receive bids until August 1 for a coal handling plant for the New York Navy Yard.

The following bids were opened June 29, Circular No. 446, for machinery for the Isthmian Canal Commission:

Class 1.—Two water tube boilers, stack breeching, pipe and fittings—Bidder 2, Babcock & Wilcox Company, New York, $8057; 25, A. D. Granger Company, New York, $5988 and $6188; 88, Heine Safety Boiler Company, St. Louis, Mo., $8309 and $7309.

Class 2.—Four engine lathes—Bidder 23, Fox Bros. & Co., New York, $1356; 24, Garvin Machine Company, New York, $1432; 40, Manning, Maxwell & Moore, New York, $1620 and $2180; 52, Niles-Bement-Pond Company, New York, $1540; 74, Springfield Machine Tool Company, Springfield, Ohio, $1332.

Class 3.—Four sliding head drill presses—Bidder 22, Fairbanks Company, New York, $792; 23, Fox Bros. & Co., New York, $852; 24, Garvin Machine Company, New York, $1000 and $760; 40, Manning, Maxwell & Moore, New York, $1260 and $1160; 46, Motley, Green & Co., New York, $720; 52, Niles-Bement-Pond Company, New York, $900; 56, C. T. Patterson Company, New Orleans, La., $1240; 60, Prentiss Tool & Supply Company, New York, $896; 66, Charles E. Robidoux, St. Louis, Mo., $1140 and $1280; 72, J. E. Snyder & Son, Worcester, Mass., $1280; 79, Vandyck-Churchill Company, New York, $760 and $1040.

Class 4.—Four back-geared shapers—Bidder 22, Fairbanks Company, New York, $2220 and $1880; 23, Fox Bros. & Co., New York, $1796.64; 24, Garvin Machine Company, New York, $2152 and $2060; 26, Handlan-Buck Mfg. Company, St. Louis, Mo., $1980; 40, Manning, Maxwell & Moore, New York, $2220; 46, Motley, Green & Co., New York, $1800; 52, Niles-Bement-Pond Company, New York, $2432 and $1912; 56, C. T. Patterson Company, New Orleans, La., $2292; 59, Potter & Johnson Machine Company, Pawtucket, R. I., $2460; 60, Prentiss Tool & Supply Company, New York, $1964; 62, Queen City Machine Tool Company, Cincinnati, Ohio, $2200; 74, Springfield Machine Tool Company, Springfield, Ohio, $2220; 79, Vandyck-Churchill Company, New York, $2180.

Class 5.—Four water tool grinders—Bidder 22, Fairbanks Company, New York, $264; 23, Fox Bros. & Co., New York, $260; 26, Handlan-Buck Mfg. Company, St. Louis, Mo., $270; 27, Clinton E. Hobbs, Boston, Mass., $335.92; 40, Manning, Maxwell & Moore, New York, $292; 46, Motley, Green & Co., New York, $260; 79, Vandyck-Churchill Company, New York, $216 and $272.

Class 6.—Eighteen air hammer rock drills—Bidder 12, Chicago Pneumatic Tool Company, New York, $952.50; 13, Cleveland Pneumatic Tool Company, Cleveland, Ohio, $962; 16, Thomas H. Dallett Company, Philadelphia, Pa., $1030.13; 32, Ingersoll-Rand Company, New York, $1085.50; 46, Motley, Green & Co., New York, $1296; 76, Sullivan Machinery Company, Chicago, Ill., $988.10.

Class 7.—Twelve rock drills—Bidder 12, Chicago Pneumatic Tool Company, New York, $4259.56; 32, Ingersoll-Rand Company, New York, $5104.97 and $4079.70; 33, International Electric & Engineering Company, New York, $3794.16; 76, Sullivan Machinery Company, Chicago, Ill., $4227.12; 86, Wood Drill Works, Paterson, N. J., $4249.47.

Class 8.—Eight long stroke riveting hammers and two pneumatic wood boring machines—Bidder 12, Chicago Pneumatic Tool Company, New York, $633.45; 13, Cleveland Pneumatic Tool Company, Cleveland, Ohio, $489.60; 23, Fox Bros. & Co., New York, $610.05; 31, Independent Pneumatic Tool Company, Chicago, Ill., $398.95; 32, Ingersoll-Rand Company, New York, $545.75; 75, Standard Railway Equipment Company, St. Louis, Mo., $805.92.

The following bids were opened June 29 for supplies for the navy yards:

Class 1.—One improved tool room lathe—Bidder 84, Fairbanks Company, New York, $599; 93, Garvin Machine Company, New York, $510; 101, Harron, Ricard & McCone, San Francisco, Cal., $520; Henshaw, Bulkley & Co., San Francisco, Cal., $537.

Class 2.—One 16-in. improved tool room lathe—Bidder 84, Fairbanks Company, New York, $724; 93, Garvin Machine Company, New York, $627; 101, Harron, Ricard & McCone, San Francisco, Cal., $681.60 and $746; 184, Henshaw, Bulkley & Co., San Francisco, Cal., $680.

Class 3.—One spindle milling machine—Bidder 93, Garvin Machine Company, New York, $2600; 184, Henshaw, Bulkley & Co., San Francisco, Cal., $1895 and $2100.

Class 4.—One overhead electric traveling crane—Bidder 12, Alliance Machine Company, Alliance, Ohio, $3800; 29, Alfred Box & Co., Philadelphia, Pa., $2567; 42, Case Mfg. Company, Columbus, Ohio, $3265; 64, Cleveland Crane & Car Company, Wickliffe, Ohio, $2973; 144, Morgan Engineering Company, Alliance, Ohio, $3790; 146, Manning, Maxwell & Moore, New York, $2740; 147, Modern Steel Structural Company, Waukesha, Wis., $3610; 161, Niles-Bement-Pond Company, New York, $2830; 164, Northern Engineering Works, Detroit, Mich., $3425; 189, Pawling & Harnischfeger, Milwaukee, Wis., $3050; 195, Ransome Concrete Machinery Company, Dunnellen, N. J., $4000; 212, Shepard Electric Crane & Hoist Company, Montour Falls, N. Y., $3100; 256, Whiting Foundry Equipment Company, Harvey, Ill., $3310.

Class 52.—One long wood frame rip saw—Bidder 86, J. A. Fay & Egan Company, Cincinnati, Ohio, $676; 87, Frevert Machinery Company, New York, $838; 100, Handlan-Buck Mfg. Company, St. Louis, Mo., $700; 117, International Electric & Engineering Company, New York, $860; 239, Vermilye & Power, New York, $690; 260, Cordesman-Rechtin Company, Cincinnati, Ohio, $700.

Class 53.—One knife grinding machine—Bidder 87, Frevert Machinery Company, New York, $403; 117, International Electric & Engineering Company, New York, $321.50; 148, Motley, Green & Co., New York, $420; 166, Oliver Machinery Company, Grand Rapids, Mich., $670; 245, S. A. Woods Machine Company, South Boston, Mass., $600.

Class 55.—Two motor driven water tool grinders—Bidder 87, Frevert Machinery Company, New York, $319 and $358; 99, Hill, Clarke & Co., Boston, Mass., $284; 100, Handlan-Buck Mfg. Company, St. Louis, Mo., $396.80; 141, Manhattan Supply Company, New York, $540; 148, Motley, Green & Co., New York, $320; 183, Ransome Mfg. Company, Oshkosh, Wis., $300.

Class 56.—One motor driven dry grinder—Bidder 183, Ransome Mfg. Company, Ashkosh, Wis., $197.

Class 58.—One 12-in. wood turning speed lathe—Bidder 9, American Wood Working Machinery Company, Rochester, N. Y., $75; 86, J. A. Fay & Egan Company, Cincinnati, Ohio, $91; 87, Frevert Machinery Company, New York, $68; 100, Handlan-Buck Mfg. Company, St. Louis, Mo., $97; 117, International Electric & Engineering Company, New York, $250; 166, Oliver Machinery Company, Grand Rapids, Mich., $74.

Class 59.—One mechanical woodworking machine—Bidder 166, Oliver Machinery Company, Grand Rapids, Mich., $3826, $4081, $3578 and $3833.

Class 60.—One four-side outside molder—Bidder 9, American Wood Working Machinery Company, Rochester, N. Y., $925; 86, J. A. Fay & Egan Company, Cincinnati, Ohio, $896; 100, Handlan-Buck Mfg. Company, St. Louis, Mo., $938; 146, Manning, Maxwell & Moore, New York, $950; 223, A. B. Smith Machine Company, Smithville, N. J., $915.90.

Class 61.—One panel planer—Bidder 9, American Wood Working Machinery Company, Rochester, N. Y., $510; 86, J. A. Fay & Egan Company, Cincinnati, Ohio, $419; 87, Frevert Machinery Company, New York, $478 and $538; 100, Handlan-Buck Mfg. Company, St. Louis, Mo., $441; 117, International Electric & Engineering Company, New York, $505; 166, Oliver Machinery Company, Grand Rapids, Mich., $748 and $582; 223, A. B. Smith Machine Company, Smithville, N. J., $526; 260, Cordesman-Rechtin Company, Cincinnati, Ohio, $655.

Class 62.—One hand planer and jointer—Bidder 86, J. A. Fay & Egan Company, Cincinnati, Ohio, $465; 87, Frevert Machinery Company, New York, $404 and $458; 100, Handlan-Buck Mfg. Company, St. Louis, Mo., $496; 117, International Electric & Engineering Company, New York, $435 and $500; 166, Oliver Machinery Company, Grand Rapids, Mich., $759, $643, $550 and $435.

Class 63.—One motor driven sensitive drill—Bidder 46, James Clark, Jr., Electric Company, Louisville, Ky., $115.50; 87, Frevert Machinery Company, New York, $98; 235, U. S. Electric Tool Company, Cincinnati, Ohio, $95.

The only bid received July 1 by the Department of Agriculture for five mechanical stokers was one from the Underfeed Stoker Company, Chicago, Ill., $4870.

The Nordberg Mfg. Company, Milwaukee, Wis., has been awarded contract for air compressors and accessories for the Philadelphia Navy Yard at its bid of $22,600.

Under bids opened June 22 for one portable pipe threading and cutting machine for the Isthmian Canal Commission, the bid of Vermilye & Power, New York, $549.70 has been accepted.

The Des Moines Bridge & Iron Company, Des Moines, Iowa, has been awarded contract for boiler, smokestack and addition to power house at the Indian School, Salem, Ore., at $8188.

Under bids opened June 22, Circular No. 445, for supplies for the Isthmian Canal Commission, George S. Fowler, Washington, D. C., has been awarded class 3, six roller bearing geared ratchet screw jacks, $435.

The following awards have been made for supplies for the navy yards, bids for which were opened June 23:

Helwig Mfg. Company, St. Paul, Minn., class 149, pneumatic drill and pneumatic calking hammer, $83.

Montgomery & Co., New York, class 152, one valve reseating machine, $325.

Improvements at Mary Furnace.—The Ohio Iron & Steel Company's Mary Furnace at Lowellville, Ohio, which has been shut down for three months or more, has been extensively improved. This includes the installation of 500 hp. Wheeler boilers, a 35 ton Brown Engineering Company crane for use in unloading and handling ore, pig iron, &c.; a new 55 x 80 ft. brick building in which the pumps are now all centrally located; an addition to the machine shop, and the remodeling of all filling bins and trestles. A large dam has been built on the hillside, forming a lake 30 ft. deep and 1600 ft. long, which insures the company a large supply of clear water for operation of the furnaces. The company has a contract with the Youngstown Sheet & Tube Company to deliver a certain tonnage of Bessemer iron monthly, and this, in connection with other contracts taken, warrants the starting up of the furnace, and it will go in blast about July 20. Its daily capacity is 400 tons.

Owing to the increased call upon it for completely finished valve stems and other similar work, the Electric Welding Products Company, Cleveland, Ohio, has recently installed a grinding and finishing department, consisting of several Brown & Sharpe plain and universal grinders and special imported machines for spline milling or slot cutting, as well as centering machines. With the aid of this department the company is able to turn out a product completely finished in every detail. For example, a gas engine valve stem is ground on both seat and stem, and a slot, groove or thread is cut or hole drilled and the end hardened, so that it is all ready to slip into an engine in the assembling room. A majority of the large manufacturers are grinding their valve stems and many other parts to insure an accurate fit and wear.

HARDWARE

LEGISLATION for the correction of evils and the protection of the community from perils or wrongs of one kind or another to which it may be subject frequently has a bearing which was not thought of when the laws were enacted. An example of this is found in the case of the legal requirements which are in force in several States regulating the kind of Cans in which Gasoline or other explosive fluids are to be contained, and establishing penalties if these requirements are not followed. There is naturally some difference in the phraseology of these laws and in the details of their provisions, but a typical illustration is found in the law which prevails in at least one State providing that Gasoline and Benzine in quantities of more than a pint and less than 6 gal. shall be contained only in receptacles of a bright red color, which shall be tagged and labeled in plain letters with the name of the contents. The sale of these dangerous fluids or the keeping of them in other receptacles is a misdemeanor. It will be seen that this endeavor to secure the safety of the people entails new difficulties for the manufacturers and merchants. Comparatively few States, we believe, have as yet such requirements, but manufacturers of Cans if they desire a sale of their goods in the States where such legislation prevails, have to be careful to comply with the law. In order to do this, in addition to the regular styles, they must make special Cans which will meet the special legislation in the various States. Inasmuch as each State is free to pass laws of this character according to its own notion, there is obviously the possibility that it may be necessary for the manufacturers to turn out a wide variety of styles or patterns of a given article in order to comply with the varying provisions of the different States. It would be of interest to know to what extent these laws are enforced, because some manufacturers of the goods in question appear to be ignorant of the existence of these laws. The difficulty, too, comes up to the jobbers whose territory includes several States.

It would be a mistake to assume that the problem as to methods which the Government can best employ to help manufacturers and export houses to secure foreign trade is a simple one. Notwithstanding the Government's great resources, and a sincere desire to co-operate in the extension of foreign business, it is hard to determine along what lines efforts should be made and in what manner the best results can be secured. In this it will doubtless be necessary for our officials to feel their way. Something indeed may be learned from the methods adopted in other countries, but it is not the American way simply to imitate. The problem is to find better methods and to develop new lines of usefulness. In grappling with this task we bespeak the co-operation of our manufacturers and merchants. This may be given in more than one way. Advice as to measures which may be adopted and the lines along which the efforts to extend foreign business may advantageously be carried will undoubtedly be welcomed by the department at Washington and given weight in forming plans for its enlarged usefulness. In a less formal and more indirect manner the officials in question can be guided in ascertaining the needs of those who are seeking foreign markets if inquiries are frequently sent to them asking for the specific information desired. It may not be feasible to give the inquirers a full reply to requests, for example, in regard to the foreign prices of a certain class of articles, the names in a given city or country of those who might reasonably purchase them, what the competing goods are which now hold the market and the countries in which such goods are made. It may be, however, that information along these lines might be obtained which would be useful as far as it goes, while at the same time the officials would be given suggestions as to lines on which their work might be directed and the kind of information that would be useful to business men who are seeking to take possession of foreign markets.

Condition of Trade.

No new features of interest have appeared in the Hardware market. The protracted period of excessive heat experienced in most sections of the country has undoubtedly added to the general dullness. The vacation season is well started, but it is doubtful if the absence of a portion of their working force is seriously felt in many establishments. Seasonable lines, however, are moving with some freedom, especially because most merchants made conservative purchases at the opening of the season, and are now requiring additional stock. As regards prices there is no improvement in the situation, and indeed there seems to be an increasing tendency to shade quotations where there is a chance of securing orders. This applies to nearly all classes of goods and buyers, quick to appreciate their advantage, show a disposition to make special terms on every order, experience having shown that they will probably be rewarded for their pains. In spite of present discouragements, it is probably true that the underlying temper of the trade is more cheerful since developments of the passing weeks all tend to show the fundamental soundness of the situation and give promise of greater activity in the fall. As has been frequently brought out, stocks have been reduced until probably they are to-day on a minimum working basis, a consideration, the importance of which cannot be overestimated in its bearing on the future. A substantial improvement in business can scarcely come about without developing a scarcity of goods and a hardening, if not an upward, movement in prices. Good judges express the belief that many lines of Hardware may be bought with confidence at the concessions now obtainable.

Chicago.

While in volume the business for June in Hardware lines compares unfavorably with that of the same month last year, and is, generally speaking, rather under than above that of the preceding month, the situation is not without its features of encouragement. Perhaps the most prominent of these is the meagerness of stocks which on all hands are reported to be uniformly low. Considering the hand to mouth order of buying that for the past six or eight months has alike prevailed with retail dealers, jobbers and manufacturers, it could, indeed, hardly be otherwise. Purchases in the meantime have been closely governed by the varying rate of current consumption, and there has been a notable disinclination on the part of buyers to discount the future by the placing of forward contracts. Even orders for seasonable goods which are of necessity made up in advance of requirements have been so conservatively estimated that they have fallen short of rather than overreached the demand. As a re-

suit, the stability of the market is spared the menace of large surplus stocks, which under like conditions in the past have seriously retarded forward progress. Increased consumption will therefore be quickly reflected all along the line from consumer to the manufacturer in direct ratio with the revival of business. Developments are unfolding too slowly to produce very marked degrees of change in the week to week periods, but it is noticed that there has been a moderate gain in the demand for Wire Nails; orders are somewhat more numerous but continue to represent actual needs. Included in the week's transactions were a few orders from car shops which have not been buying for some time; but whether or not this is significant of an early resumption of work in these plants does not yet appear. The medium grades of Builders' Hardware are also in better demand, due largely to building operations. Generally speaking, there has been no radical change in prices, though in some directions evidences pointing to the lack of firmness have developed, and it is probably true that concessions from recognized schedules are offered with more or less frequency.

NOTES ON PRICES.

Wire Nails.—The improved conditions in demand, which were noted last week, continue in a moderate way. While more freedom is shown in the quantities ordered, buyers are confining their purchases to the immediate demands of the trade. The increase in the size of orders may reflect the confidence some feel in the stability of present mill prices. Quotations for base sizes are as follows, f.o.b. Pittsburgh, plus actual freight to point of delivery, 60 days, or 2 per cent. discount for cash in 10 days:

Carloads, to jobbers.....$1.95
Carload lots to retail merchants..... 2.00
Less than car lots from mill, 5 cents advance per keg.

New York.—There is a continued demand for Nails in small lots, business being limited to immediate requirements. The price has gradually sagged since the reduction at mill, and Nails are being held on the basis of $2.30, in small lots, at store.

Chicago.—The improvement noted in last report has been well sustained by the orders entered in the past week. Though they include none of unusual size, they are numerous enough to produce in the aggregate a fair tonnage, and continue to represent actual consumptive requirements. Prices are unchanged and are, it is reported, being firmly held. Quotations are as follows: $2.13, in car lots to jobbers, and $2.18 in car lots to retailers, with an advance of 5 cents for less than car lots from mills.

Pittsburgh.—New business in Wire Nails is showing betterment, and, while jobbers are not placing large orders for delivery ahead, they are buying more freely, and shipments by the mills are showing some increase. It is stated that the large trade is becoming more convinced that there will be no further reductions in prices of Wire Nails, and for this reason are buying a little more freely. The mills advise us that they are maintaining prices absolutely. Quotations for base sizes are as follows, f.o.b. Pittsburgh, plus actual freight to point of delivery, 60 days, or 2 per cent. discount for cash in 10 days:

Carloads, to jobbers.....$1.95
Carload lots to retail merchants..... 2.00
Less than car lots from mill, 5 cents advance per keg.

Galvanized Nails are quoted at $1 over the price of the regular Nails.

Cut Nails.—Demand continues sluggish and only for moderate lots. Jobbers are pursuing the same policy as merchants have been following, that of buying for immediate needs only. The market shows increased stability to the extent that $1.75 base is only obtainable on desirable orders. Quotations on Steel Nails are on the basis of $1.75 to $1.80 at mill. In the Western market Iron Cut Nails are held at an advance of 10 cents per keg over Steel Cut Nails, but this differential is not observed in the East.

New York.—Requirements are light and are satisfied with small quantities. Cut Nails are held on the basis of $2.15 per keg for small lots at store.

Chicago.—What trade there is in Cut Nails is largely comprised of Iron Shingle Nail orders, and these are by no means either plentiful or large. Jobbers are selling only small lots and are buying for the actual needs of replenishment in the same way. The Belleville, Ill., mills are shut down and will not resume operations before September 1. We quote Chicago prices as follows: In car lots to jobbers, Iron Cut Nails, $2.08; Steel Cut Nails, $1.98. In small lots from store: Iron Cut Nails, $2.25; Steel Cut Nails, $2.15.

Pittsburgh.—Reports that Cut Nails had been sold below $1.75 at mill are officially denied, and the statement is made that this price is obtainable only on desirable orders, the general market being represented by the quotation of $1.80, Pittsburgh. Demand is only fair, and is mostly for small lots to meet current needs. We quote Steel Cut Nails at $1.75 to $1.80 at mill, the lower price being obtainable only on desirable orders. Small lots are held at $1.85 to $1.90 from store. Iron Cut Nails are quoted at 10 cents per keg advance over these prices.

Barb Wire.—Business is confined to the restricted volume usual at this season, and no market increase in demand is anticipated until fall trade commences. Reports are to the effect that regular prices are being maintained. Quotations are as follows, f.o.b. Pittsburgh, 60 days, 2 per cent. discount for cash in 10 days:

	Painted.	Gal.
Jobbers, carload lots	$2.10	$2.40
Retailers, carload lots	2.15	2.45
Retailers, less than carload lots	2.25	2.55

Chicago.—New business is very light, but perhaps not more so than is usual at this season of the year. Some shipments are still going forward from the mills, but nothing of noteworthy importance is looked for until the fall trade opens, which will be about August 1. No deviation from regular prices is reported. Quotations are as follows: Jobbers, Chicago, car lots, Painted, $2.28; Galvanized, $2.58; to retailers, car lots, Painted, $2.33; Galvanized, $2.63; retailers, less than car lots, Painted, $2.45; Galvanized, $2.75; Staples, bright, in car lots, $2.25; Galvanized, $2.55; car lots, to retailers, 10 cents extra, with an additional 5 cents for less than car lots.

Pittsburgh.—This is always the dull season in this trade, and the present light demand for Barb Wire is therefore not exceptional. Small orders to meet current needs are being placed, and the mills advise us that they are maintaining regular prices. Quotations are as follows, f.o.b. Pittsburgh, 60 days, or 2 per cent. discount for cash in 10 days:

	Painted.	Gal.
Jobbers, carload lots	$2.10	$2.40
Retailers, carload lots	2.15	2.45
Retailers, less than carload lots	2.25	2.55

Plain Wire.—Orders are being placed more freely than for some time, and while restricted to some extent to nearby requirements, crop prospects and consequent larger demand for Fencing are contributing to a better feeling. Quotations per 100 lb. to jobbers in carload lots are as follows, on a basis of $1.80 for Plain and $2.10 for Galvanized, f.o.b. Pittsburgh, 60 days, or 2 per cent. discount for cash in 10 days, the price to retailers being 5 cents additional:

Nos.	6 to 9	10	11	12&12½	13	14	15	16
Annealed	$1.80	1.85	1.90	1.95	2.05	2.15	2.25	2.35
Galvanized	2.10	2.15	2.20	2.25	2.35	2.45	2.85	2.95

Chicago.—The demand continues fairly active, and is now better than for some time past. Promising prospects for Fence trade, as a result of bountiful crops, are perhaps the strongest influence contributing to this improvement. Manufacturers are buying more liberally, though not anticipating future wants to any extent. Prices continue unchanged, and are reported to be firmly maintained. We quote as follows: Car lots to jobbers, $1.98, f.o.b. Chicago, and to retailers, $2.05.

Pittsburgh.—Fence makers are ordering Plain Wire more freely, but are still disposed to confine their purchases to actual needs. Crop prospects are very good, and for this reason alone a fairly good volume of business is anticipated during the next two or three months. Jobbers are inclined to buy more freely, believing that present prices will not be changed. Quotations per 100 lb. to

jobbers in carload lots are as follows, on a basis of $1.80 for Plain and $2.10 for Galvanized, f.o.b. Pittsburgh, 60 days, or 2 per cent. discount for cash in 10 days, the price to retailers being 5 cents additional:

Nos.	6 to 9	10	11	12&12½	13	14	15	16
Annealed	$1.80	1.85	1.90	1.95	2.05	2.15	2.25	2.35
Galvanized	2.10	2.15	2.20	2.25	2.35	2.45	2.85	2.95

Rope.—There is nothing in the position of Cordage that is encouraging to manufacturers. Demand is light and the Hemp market is easier and inactive. Cordage is inclined to follow the lower prices of raw material, while manufacturers are working up material which they purchased at higher prices than now ruling. According to published reports the receipt of Manila Hemp at Manila ports is double of that for 1907. It is reported that Pure Manila Rope has been sold at 9½ cents and Pure Sisal at 6 cents per lb. Regular quotations are, however, as follows, at which the market is not very firm: Pure Manila, 10 cents; Pure Sisal, 7 cents; No. 1 Jute, ¾-in. and up, 5¾ cents; No. 2 Jute, ¼-in. and up, 5¼ cents.

Window Glass.—There is now but a small proportion of the hand operated factories in blast, as quite a number have shut down during the past week, materially reducing the output for the coming two or three months. The factories that are still in operation are trying the experiment of running through July and August. Demand for June fell short of expectations, and if trade does not improve there will be little inducement for factories to continue in operation. A call has been issued for a meeting of the members of the Western Window Glass Jobbers' Association to be held in Chicago on July 9. The call is said to embody the statement that "This will be the commencement of a money making era." The Eastern Jobbers' Window Glass Association recommend the following quotations: New England and New York Metropolitan District, 90 and 30 per cent. discount for Single, and 90 and 35 per cent. discount for Double Strength; Eastern and Southern States, including the Carolinas, 90 and 35 Single, and 90 and 40 per cent. discount for Double Strength; extreme Southern States, including Florida, Georgia and Alabama, 90 and 30 for Single, and 90 and 35 per cent. discount for Double Strength Glass.

Nickel Plated Copper Ware, Etc.—Some manufacturers have announced reductions of 5 per cent. or thereabouts, in Nickel Plated Copper Ware, Copper Pots and Kettles, &c.

Dripping Pans.—As reported last week, there seems to be an open market on Dripping Pans, and quotations showing heavy declines from former established prices are being made by many manufacturers. The market on this line to average trade may be fairly quoted at 70 and 10 to 70, 10 and 5 per cent. discount.

Soil Pipe.—The condition of the market for Cast Iron Soil Pipe continues unsatisfactory, the irregularity arising from competition being accentuated by low prices for raw material. On standard 2-6 in. Pipe the market may be represented in a general way by a discount of 70 per cent.; on Extra Heavy, by 75 and 10 per cent., and on Standard and Extra Heavy Fittings, by 80 and 10 to 80, 10 and 10 per cent.

Shovels.—Owing to the lightness of the demand from large consumers the Shovel business is dull, and many plants are practically shut down. Low quotations are being made by so-called independent manufacturers, but, as regards prices, conditions are about the same as on other Hardware lines, special concessions being obtainable where orders are to be placed, even though the quantity is moderate. No change in prices has been made by the constituent companies of the Ames Shovel & Tool Corporation.

Sash Weights.—The Sash Weight market in the western and central districts is reported as showing increased firmness. The market price is said to be generally well maintained at $20 to $22 per ton, though lower prices have been made in some cases.

White Lead.—The position of Pig Lead is somewhat weaker and precludes the idea of higher prices at present of the finished product. The market for White Lead is referred to as firm at the recent advance. Demand in the way of small lots is considered fair for the season, as there is no inducement for buying ahead of nearby requirements. Quotations for best brands are on the basis of 7 cents per pound for 100, 250 and 500 lb. kegs, with an advance of ½ cent per pound over the above price in lots of less than 500 lbs.

Linseed Oil.—The market shows comparatively little activity, and what business there is generally represents small lots to meet nearby requirements. There is really more pressure to sell than there is to buy, and the supply of Oil in crushers' hands is considered sufficient to supply current needs. Buyers are looking for concessions in prices rather than for advances. Local quotations are as follows: State and Western Raw, 41 to 44 cents; City Raw, 44 to 45 cents per gallon. Boiled Oil is 1 cent per gallon advance on Raw.

Spirits Turpentine.—The market has advanced about 1 cent a gallon during the week, reflecting the stronger tone of the Savannah market, which was the result of heavy export buying. In the local market demand has been light, and only for small lots. The New York market is represented by the following quotations: Oil Barrels, 42½ to 43 cents; Machine Made Barrels, 43 to 43½ cents per gallon.

CAROLINAS RETAIL HARDWARE ASSOCIATION.

(By Telegraph.)

THE fourth annual convention of the Retail Hardware Association of the Carolinas is in progress as we go to press. The meetings are held in the ballroom of the Seashore Hotel, Wrightsville Beach, N. C. The opening session was held on Tuesday forenoon when a goodly number of members and guests, among whom was a delegation of ladies, were in attendance. After the address of the president, W. W. Everett, Rockingham, N. C., the whole of the national hymn, "America," was sung, and not simply the first stanza, as is often the case at such gatherings. The singing was heartily united in under excellent leadership, instrumental and vocal, a copy of the words being furnished in printed form to all in attendance. This was commented on as illustrating the careful and detailed preparation made for the convention.

The formal address of welcome was made by W. E. Springer, Mayor of Wilmington, whose greeting was especially happy, as he is a well-known Hardware merchant of the city. Besides extending the usual courtesies the Mayor gave a résumé of interesting facts in regard to the city of Wilmington, the agricultural and other products of the State, and the development of manufactures and commerce generally throughout the South. Happy responses were made by E. Walker Duval, Cheraw, S. C., on behalf of the members, and by W. W. Watt on behalf of the associate members.

One of the difficulties under which business interests suffer in South Carolina is the want of a proper lien law, and the question as to how the passing of such a law can be secured was discussed by W. M. Otis, manager of the Columbia Lumber & Mfg. Company., whose clear and forcible address led to the calling of a conference of the South Carolina members to determine on what should be done along the lines recommended. A most admirable paper was presented by R. D. Baldwin, Fitchburg, Mass., advertising manager of the Simonds Mfg. Company. It was a carefully prepared and eminently practical paper on the subject of advertising, especially by Hardware merchants, and abounded in excellent suggestions put in a clear, crisp and effective manner.

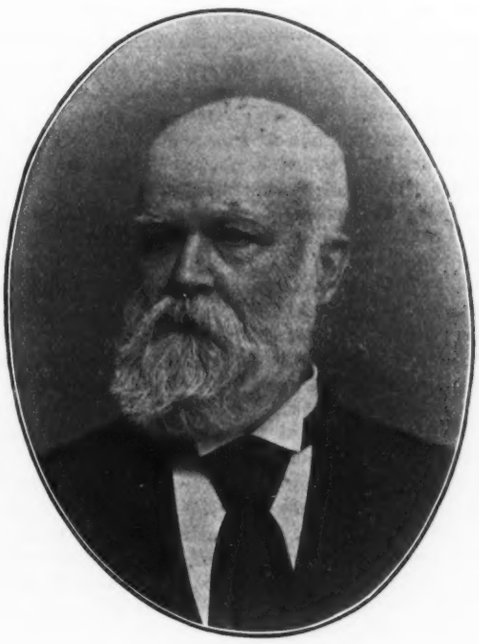
A brief address was made by R. R. Williams of *The Iron Age*, who touched lightly on some matters connected with the gathering. He referred among other things to the happy combination of work and play which the members were invited to enjoy in accordance with the arrangements of the wisely planned programme which provided for serious work along business lines with ample opportunity for recreation and social intercourse. Attention was then given to the announcement of committees, enrollment of those in attendance, securing the sig-

natures of new members and other matters connected with the business of the association.

The afternoon was given up to inspection of the Hardware exhibits. Wednesday is perhaps the most important day of the convention, the forenoon being given up to an exceptionally interesting excursion, while the afternoon will be devoted to association work and the discussion of several topics of importance.

Death of William H. Belcher.

WILLIAM HARBORNE BELCHER, the last of the English family of Belchers who manufactured measuring rules in this country for nearly a century, died at his home in Orange, N. J., June 20, of pneumonia,



WILLIAM HARBORNE BELCHER.

in his seventy-ninth year, after an illness of less than two days.

Mr. Belcher and the business of the house were best known to an earlier generation of Hardware men, but although the goods in diminishing volume were sent all over the country to the last, younger houses more in harmony with current methods of production had secured much of the trade in this line. About three years ago an interest in the business was purchased by Edwin B. Stimpson, who in February, 1907, sold it outright to the Lufkin Rule Company, Saginaw, Mich. The latter company, with its great capacity and resources, transferred such machinery, tools, stock, books and papers as were of value, to Saginaw, even taking some of the employees who were grounded in the manufacture of rules through years of experience and conversant with the Belcher methods in producing high grade goods, which in their day were standard products. The old line is still being manufactured by the Lufkin Rule Company, a new catalogue just issued showing various kinds of gauging and wantage rods, shrinkage rules, extension and desk rules, tailors' and dressmakers' squares, beveled yard and curve sticks, yard sticks, shoemakers' size sticks, etc., while some of the old time specialties can still be obtained, to order. Belcher Brothers & Co. made innumerable kinds of measuring devices in lance, maple and boxwood, ivory, &c., not only in the standard styles and sizes but specialties for draftsmen and engineers of various kinds, having for a long time made desk rules, &c., for E. Faber, pencil manufacturer.

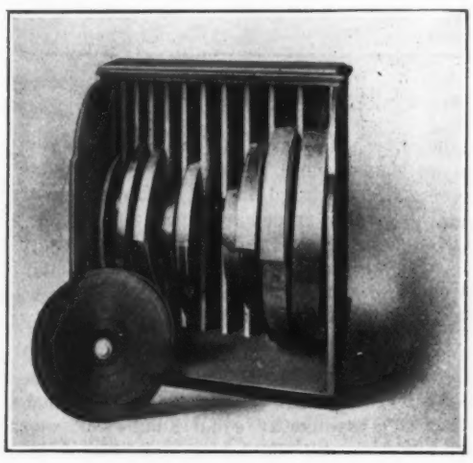
William H. Belcher was born in 1830 in New York City, and was the son of William Belcher, one of the founders of the original rule business in the United States. Zachariah Belcher, an Englishman, originally founded this business in Sheffield, England, in 1788, where, it is said, Arthur Belcher, a grandson of Zachariah Belcher, still carries on in a moderate way the manufacture of Rules. Thomas Belcher came to this country in 1821, and was soon followed by his brothers William (father of William H.), Charles, Zachariah and Henry. At first he settled in Baltimore, but desirous of establishing a plant to be run by water power selected a site at Camptown, now Irvington, where the business has always been carried on.

The subject of this sketch was never connected directly with the manufacture of Rules, but always acted as selling representative, with an office and stock in New York, from which the goods were shipped all over the country. Mr. Belcher, many years ago, also represented directly the Brown & Sharpe Mfg. Company, Providence, carrying a stock of the goods so far as they related to measuring devices of this character, and selling exclusively at the company's own prices.

Mr. Belcher and other members of the family lived in Brooklyn for many years, but about 30 years ago he removed to Orange, N. J., where he has since been a respected and honored resident. He was of the old school of business men, thoroughly honorable and upright in all his dealings, vigorous, of erect carriage and much given to bicycle riding as a healthful pastime until within a comparatively short time. Mr. Belcher valued his home and spent most of his time with his family, his deafness probably having kept him from many activities he would otherwise have been identified with. He is survived by a widow, one son and three daughters.

A Convenient Belting Rack.

FOR effectively handling narrow leather and rubber belting, the Chandler & Farquhar Company, 34-38 Federal street, Boston, Mass., constructed the rack here illustrated. The uprights are made of ⅞-in. boards, the spaces between them being about the same as the width of the belting they are designed to accommodate. Diagonal runways, 1½ in. across, with circular inner ends, are cut in each upright, all runways being about half the distance between the bottom and the top of the rack. The rolls or axles are made of wood, all 3 in. in diameter and as long as the belting is wide, with a projection turned on each end 1½ in. in diameter and 7-16 in. long. Thus each upright accommodates a projection from each



A Convenient Belting Rack.

side. One of the rolls is shown in the illustration standing by the rack. This arrangement allows the belting to be reeled off for retailing and also an entire roll to be taken from the rack, should occasion require.

THE LANSING WHEELBARROW COMPANY, Philadelphia, has just completed and moved into its new five-story warehouse, standing at the corner of American and Willow streets. The company is carrying a very large stock in this warehouse, from which it will fill orders from all surrounding country and the South.

ENAMELED WARE WINDOW DISPLAY.

BY FAR WEST.

TO make an attractive window of Enameled Ware is not the easiest thing to do. Especially is this so with Gray Enameled Utensils, which have been in the market so long that it is now the price, more than anything else, that is relied upon to attract and make sales.

Prices Made Prominent.

For a display of this kind arrange the utensils in a half circle, starting in the corner of a window and building up the half circle until it terminates in a single article at the top, being careful to have none of the boxes or racks show. Then as price is the main feature, each article should have a plain mark on it, while a large card hung in the window emphasizes the prices, and the arrangement has the appearance of quantity. In combination with other colors of Enameled Ware, effective windows can be made. On the wall side of the window hang one of the large colored posters furnished by the manufacturers. If you have none advertising your particular kind or make, you may use nearly any large poster, providing is has a clean cut design. Follow the outline of the design by hanging Tea and Coffee Pots upon finishing nails placed just far enough apart so that each pot will just touch the next. This can be done by driving the first nail a little to the right or left of the center of the design, if it is circular. Hang a pot and then gauge for the next. Have Tea Pots hang one way, Coffee Pots the reverse.

Combine Colors.

Tea and Coffee Pots.

A Window Exhibit of Enameled Ware.

Hang the other articles on the outline of the rest of the design, as Cups, small Pitcher or Sauce Pans. The poster used in the window trim described was a trademark, the design being a large battle ax. The picture of a woman would be excellent. In using this Kettles could be placed to look as though she were holding them, and a string of Pans hung around her waist.

A Woman in the Case.

For the Window

place a row of Gray Enameled Tea Kettles close to the glass, the largest a little to one side of the center. On the other side arrange an equal number of colored Tea Kettles, as brown and white, blue and white or green and white. In the center of the window place a large Galvanized Washtub. In front of this put large white lined Platters, so that the tub is entirely concealed. On this tub place a much smaller one, placing flat ware in front of this also, letting the edge rest on the tub underneath.

On the second tub stand a high piece, such as a white enameled Slop Pail, and on top of this place a white lined Wash Bowl inverted, and top the whole with a large white Bowl and Pitcher. If the window has side posts of wood, hang on them tin Sink Strainers. These not only serve to cover the posts, but catch the light and add to the white effect of the window. If all of the window space is not taken up by centerpiece, an Oil or Gas Stove is good for a background; then place Saucepans and Kettles over the burners. In trimming with Enameled Ware there are often found blank spaces that need filling. Saucepans on the Stove, if filled with sand, can be placed so the handle will project without upsetting, and on the projecting handle other Kettles may be hung. These blank spaces should be watched for and prevented, which can only be done by either the trimmer or an assistant going frequently to the outside of the window.

Preventing Blank Spaces.

Trade Items.

THE CHAPIN-STEPHENS COMPANY, Pine Meadow, Conn., and 126 Chambers street, New York, has purchased all the plane machinery and finished stock and the greater part of the raw material of the Doscher Plane & Tool Company, Saugatuck, Conn., which has discontinued business since the death of Marten Doscher a month or two since.

O. CHAN WELLS, 100 William street, New York, who has represented the Casey-Hedges Company, Chattanooga, Tenn., in its Soil Pipe and Fittings department for the past eight years, is now to have, in addition, supervision of its Boiler department for the North Atlantic Coast, also as general agent. Theodore T. Mesereau, formerly United States Local Inspector of Boilers of Steam Vessels, Port of New York, has, in this connection, likewise been appointed sales agent for the marine department of the same company, which has decided to extend its business and compete for marine work in the same territory. The Casey-Hedges Company, capitalized for $1,000,000, manufactures Water Tube, marine and standard Boilers, brickless setting, hollow blast Grates, Cast Iron Soil Pipe and Fittings, water, steam and gas specialties and plumbers' cast iron goods.

ARTHUR PRATT, manufacturers' agent, Spring and Gresham streets, Sydney, N. S. W., is now in this country on a business trip. During the present week he is visiting the Hardware manufacturers of Connecticut with a view to making arrangements with some of them for the representation of their products to the trade of Australia and New Zealand.

THE AUTOMOBILE CLUB OF AMERICA, Fifty-fourth street, New York, his just issued its 1908 year book of 117 pages, which contains much information in regard to the club, including constitution and by-laws, officers, committees, active, life and honorary members, &c.

THE LUFKIN RULE COMPANY, Saginaw, Mich., and Windsor, Ontario, has just issued illustrated descriptive catalogue No. 8 of measuring tapes and rules of every kind, the 96 pages also including illustrations of the two plants as they now exist. The tapes of steel, phosphor bronze linen, &c., include everything, in various systems of graduation, from those for surveyors and engineers to the dainty pocket sizes. Specialties include exhaustive lines of steel and wood desk rules and other measuring devices for diverse trades.

THE RUSSELL, BURDSALL & WARD BOLT & NUT COMPANY, with principal plant at Port Chester, N. Y., other plants being located at Pemberwick, Conn., and Rock Falls, Ill., has issued an elegantly printed and conveniently arranged catalogue of Bolts and Nuts, of which the styles most popular with the largest consumers are illustrated, Rivets, Screws, Staples, Turnbuckles, Washers, &c. It also contains interesting tables of weights, together with a voluminous telegraphic code. It is stated that the company is now prepared to furnish Nuts and Bolts, as well as other work, galvanized in a superior manner, either by a new electro-galvanizing process or by the hot process, as may be preferred.

W. C. Youngblood has bought an interest in the Monroe Hardware Company, Monroe, La., and will be actively connected with the business from now on. G. G. Weaks, vice-president and manager of the company since 1899, has severed his connection, and will enter business on his own account about September 1, handling Mill Supplies, Roofing, Fencing, &c.

Correspondence.

The National Prosperity Association.

To the Editor: I thought the readers of your valuable journal would be interested to hear about the work of the National Prosperity Association and what it had accomplished.

On May 1, 1908, a number of the largest and most successful business men of St. Louis got together to talk over the condition of business. They reasoned that the panic was over; that there never had been any real good reason for this panic; that fundamentally conditions were all right; that there was no reason now for a depression in business, excepting lack of confidence. The history of this country shows that after panics which have occurred previously, it has taken from three to five years to get back to a full volume of business; and also that Presidential campaigns had a deterrent influence upon the course of business. We believed it was possible, by a strong, vigorous, intelligent effort, to overcome these handicaps and to hasten the return of business activity very materially. It was a sort of vague proposition—rather difficult to know how to begin and what to do; but after careful consideration we made our plans, and have worked to them with some considerable success.

We first ascertained that there were about 100,000 business organizations in the United States. To every one of them we sent out prosperity literature—our letter of good cheer and our platform of full dinner pails, &c.—asking co-operation and approval—which we received in unstinted measure; in fact, we marveled at the wonderfully prompt and cordial responses that came to hand by the thousand. Nearly all of these letters stated that they were willing to do anything we asked of them—to work in any way we directed—attend any meeting that we could get up; in fact, a number of them were decidedly in favor of a large Prosperity Congress to be held in St. Louis almost immediately. This gave us a realizing sense of the importance and the purpose of these business organizations, and when we come to think of the tremendous influence they could wield if their entire power was concentrated on turning public opinion into healthy channels, it was something most interesting to contemplate.

Next, our Executive Committee visited President Roosevelt and made a short address to him; received a most cordial response at his hands—all of which has been made public, so I shall not attempt to repeat it. After that we were given a luncheon by the Chamber of Commerce of New York City, where our work was discussed impartially and logically, and the conclusion they reached was that we were working on the right lines and we could accomplish a great deal, and they promised us cordial and hearty support.

After returning to St. Louis, our committee originated and put into shape the idea of a Re-Employment Day on June 1. We sent circulars to all the business people of St. Louis, asking them to take back as many of their old employees as possible on June 1, whether they wanted them or not. The result was that 17,800 people were put to work on that day, and the idea of a Re-Employment Day was established as a fact and one that could be put into successful operation. This was a practical thing, which clearly demonstrated that our organization was based upon good sense, and that results could be obtained. Cincinnati took up the work of Re-employment Day, and they have been very successful, so that on July 1, most of the idle people in and around Cincinnati were put to work again. Chicago did the same thing. Cleveland has fixed August 1 as Re-Employment Day, but it looks now as though they would not be able to wait that long, because of the increased business that has come to them. We feel vastly pleased at the result of this plan of having a Re-Employment Day, because it has produced such success.

The more we considered the problem of prosperity the more we realized that we could not have it in full measure until the railroads began to buy, as they are the greatest purchasing power on the face of the earth. We found that last year the railroads bought of raw material and manufactured products, $2,250,000,000 in value; we found the deficit in their purchases this year for the first six months, as compared to the same period of last year, was $450,000,000. We therefore commenced an earnest, active campaign of education—trying to change the prevailing sentiment of antagonism and distrust toward railroads, to friendship and friendliness.

In my address on June 10 to the Commercial Clubs convention in Oklahoma I laid great stress and dwelt with as much force as possible upon the necessity of giving the railroads a chance to adapt themselves to new conditions and new laws before framing others. This convention consisted of delegates from the Commercial Clubs of all the cities in Oklahoma. It seems they have a Commercial Club there in every place of any importance, and they convened in Oklahoma City for the express purpose of declaring themselves opposed to drastic and unfavorable legislation, which has the effect of keeping out capital and of deterring railroad improvement and expansion. Their resolutions, unanimously passed, were exceedingly strong, and in substance they said that their votes would be against any man who would favor unfriendly laws against large corporations and against railroads; that they realized capital was timid; that they need capital very much indeed to develop the resources of that wonderful State, and they did not want to wait five or ten years for it; therefore, they wanted to make it known in the most public way possible that sentiment was favorable and legislation would be friendly.

Among other means that were employed was the insertion of our "Good Cheer" letter and our platform in 2000 country newspapers—all of which appeared within the space of one week, and it is estimated that we reached from 9,000,000 to 10,000,000 of the farming community in that manner.

On June 29 Texas held a convention in Galveston for the same purpose as the Oklahoma convention. Their slogan was "Fewer laws and better laws." There has been a marked change in sentiment during these 60 days, and it is confidently believed now that where there was a general feeling of antagonism toward railroads and large corporations, it is now fully realized that the interests of these railroads and large corporations and the interests of the people at large are so corelated, so interlinked and so closely allied that what hurts one hurts the other; in other words, that any one who hurts the railroads hurts the masses of the people—and especially hurts the working man.

An evidence of change in sentiment was shown in the recent election in Georgia, where Governor Hoke Smith, who sought re-election, was turned down because of his opposition and unfriendly attitude toward railroads, and the vote of that State was reversed by about 40,000.

In my address in Oklahoma City June 10, I used two phrases which seem to have "caught on" remarkably, as they have been quoted all over the country. One of those was "Stop rocking the boat." It seems to be catchy—people seem to like it—at least newspaper men do, and it is being quoted very frequently. The other was, "Don't burn down all your barns trying to smoke out a few rats"—which has likewise become very popular and has been repeated many times.

We are now trying to get adopted as a slogan for the coming campaign a sentence used in the Oklahoma address, viz.: "Let us get back to full dinner pails and dividends." If you can do anything through *The Iron Age* to accelerate the adoption of that slogan, assuming that it meets your approval, of which there is not the slightest doubt in my mind, I shall consider it a good help in pushing along the prosperity movement.

Meantime, our own business has been growing better each week. The month of June was very satisfactory indeed—far better than we had reason to think it could possibly be, and we cannot but believe that the generally hopeful atmosphere of the country—with the sunshine and good cheer which has been brought about by the work of the Prosperity Association—has contributed in no small degree to the great improvement that there is in business conditions since May 1, or since the National Prosperity Association was organized.

Speaking of the help we have received and the co-operation from so many different sources—I express my gratitude for the help given us by the Michigan (State) Retail Hardware Dealers' Association. They got out a circular, which was remarkably well gotten up and forcibly worded, calling attention to our work—asking every member of their association to join in it—to pull on the prosperity rope—to push on the prosperity line—and to "lift" with the prosperity lifters. If we could have that done in every State in the Union and let the Hardwaremen be leaders in it, it would be a good thing, because it would put before the world the fact that the men who are engaged in the Hardware business in this country are the leaders in every good work—foremost in every undertaking, with any amount of "get up and git," progress, push and enterprise. Yours truly,

E. C. SIMMONS, Chairman Executive Committee National Prosperity Association.

Plymouth Cordage Company.

THE initial number of the house organ, "Plymouth Products," published by the Plymouth Cordage Company, North Plymouth, Mass., was largely historical in character, but the second now at hand amply substan-

16 PLYMOUTH PRODUCTS

must cover, not only matters affecting the present, but must forecast the future with the greatest possible degree of certainty. Such foresight is particularly valuable in the cordage business, where material must be provided for many months before it is used. This factor has always been conspicuous in the management of the Plymouth Cordage Co., which has contributed not a little to its continued and increasing growth and prosperity.

So, before taking up in detail our own products, we wish to begin our story with a few facts about our raw materials, which we hope will be interesting in themselves, and also show the rope user some ways in which the quality and price of the rope are affected.

For the rope-maker, the raw material *par excellence* is the so-called "Manila hemp." Strictly speaking this is not a hemp at all, being a fiber obtained from the wild banana plant of the Philippine Islands. The botanists tell us to call this plant *Musa Textilis*, but the Filipino, who ought to know, calls both the plant and its fiber "Abacá."

BASE OF MANILA (8 FT. LONG)

The Philippines have a monopoly of this very important plant, as it has never been successfully cultivated elsewhere. So it will be seen at the start that the user of Manila hemp is dependent entirely upon our recently-acquired foreign possessions for his supply. Like most monopolists, the Filipino is not particularly

Page from Monthly Bulletin Issued by Plymouth Cordage Company.

tiates the promise of the company to furnish through this channel interesting and unusual information of value to all buyers and users of Rope. The raw material of the Rope maker, Manila hemp, is the subject of this number, which treats at length of the growth, handling, grading, packing and shipping of the raw product. It is written in a clear and entertaining style, excellently printed on good paper and contains a profusion of handsome and picturesque halftone illustrations, which add much to the interest of the story. Perhaps no better idea can be given of the contents of the booklet than by presenting the accompanying reproduction of one of its pages. This will indicate the interest of the subjects chosen for illustration, and a glance at the text distinctly suggests the technical importance of the information compiled. In a chapter entitled "An Object Lesson" in the first issue of "Plymouth Products," the company makes a comparison which may be startling to the uninitiated. This comparison presents by means of photographic illustration and also by measurements and tests the relative value and strength of two coils of Rope, one being of the company's manufacture and the other being of so-called Manila, selling 3 cents per pound lower than Plymouth. The two Ropes were both ½ in. in diameter and were taken from regular stock just as they were placed on sale. After the burlap covering had been removed, the coils were photographed and accurately weighed and measured. A number of pieces of each were also tested upon a reliable testing machine. As already suggested the difference in the two coils is instantly apparent from a glance at the pictures, the coil of Plymouth Rope appearing much more bulky and substantial. The results of the tests and measurements were even more conclusive, being tabulated as follows:

	Plymouth.	Anon.
Length of rope in coil	1,250 ft.	1,070 ft.
Weight of coil with lashings	97 lb.	97 lb.
Weight of lashings	1 lb.	3 lb.
Assumed price per pound	12 cts.	9 cts.
Comparative price per 100 ft.	93 cts.	82 cts.
Breaking strength	2,907 lb.	1,450 lb.
Comparative value (Plymouth worth 12 cents)	12 cts.	5⅔ cts.

It goes without saying that the company is doing the trade a service in issuing these bulletins. The information disseminated will doubtless be new to many handlers of Rope, who, by its intelligent study, cannot fail to become more proficient as buyers or sellers of this product. Further steps in the process of manufacture, &c., will be treated in forthcoming issues, and a large proportion of the trade will doubtless avail themselves of the company's offer to send the paper gratuitously upon request.

Requests for Catalogues, Etc.

The trade is given an opportunity in this column to request from manufacturers price-lists, catalogues, quotations, &c., relating to general lines of goods.

REQUESTS for catalogues, price-lists, quotations, &c., have been received from the following houses, with whom manufacturers may desire to communicate:

FROM GENSEMER & Co., Duncannon, Pa., who have opened a new Hardware and House Furnishing Goods store.

FROM THE PARK STREET HARDWARE & LOAN COMPANY, which has been incorporated in Hartford, Conn., with $3000 capital stock, handling Shelf and Heavy Hardware, Paints, Oils and Sporting and Athletic Goods. New fixtures have been installed in the store.

FROM WHITE & TEMPLE, Mankato, Kan., who have purchased the Vance Hardware business in Randall, Kan., and will continue it under the name of Randall Hardware Company. The lines handled are Shelf and Heavy Hardware, Stoves, Tinware, Paints, Oils and Sporting Goods.

FROM G. T. HANSON, who has purchased the store of M. O. Rime, Oxfordville, Wis., dealing in Shelf and Heavy Hardware, Stoves, Tinware, Paints and Oils.

FROM STOFER MERCANTILE COMPANY, which is opening a store in Headrick, Okla., and will handle Shelf and Heavy Hardware, Stoves, Tinware, Agricultural Implements, Paints, Oils, Sporting Goods and Furniture. The company has other stores at Snyder and Manitou, Okla.

FROM MCKINNEY & VAN ALLEN, who have embarked in the Hardware business at Spirit Lake, Idaho.

FROM YAEGER-BETHEL HARDWARE COMPANY, Tallahassee, Fla., wholesale and retail Sporting Goods, Mill Supplies, Building Material, Stoves, Paints, Oils, Agricultural Implements, Plumbing, Roofing, &c., which has reorganized its office system and now has excellent facilities for accommodating catalogues and other trade literature issued by manufacturers. The company will value catalogues, price-lists, &c., relating to the above lines.

PACIFIC COAST HARDWARE JOBBERS' CLEARING HOUSE.

THE good feeling among competitors which is increasingly characteristic of the Hardware trade has borne valuable fruit in the recent months of financial stress and business depression. Skeptical ones, formerly inclined to discount, as a product of prosperity, the harmony apparently existing, have been forced to admit that in many instances it has stood the test of hard times and proved of most substantial benefit to the trade in one

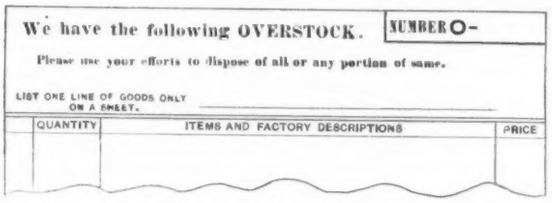

We have the following OVERSTOCK.
NUMBER O-
Please use your efforts to dispose of all or any portion of same.
LIST ONE LINE OF GOODS ONLY ON A SHEET.
QUANTITY
ITEMS AND FACTORY DESCRIPTIONS
PRICE

Fig. 1.—Overstock Blank Which Is Filled Out by Member and Sent to Secretary.

and another locality. A striking instance of harmony and good feeling carried to the extent of actual practical co-operation has been furnished by the Hardware jobbers of the Pacific Coast.

Interdependence of Jobbers on the Coast.

The situation of these houses is unique as compared with those in other sections, combining elements both of weakness and of strength. Cut off in a way from the rest of the country and far from their source of supply

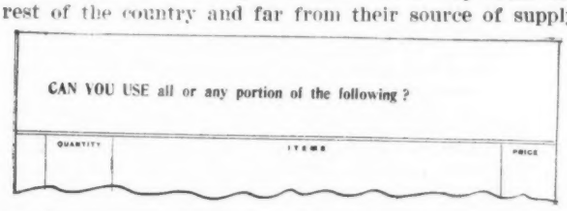


Fig. 2.—Overstock Blank Filled Out by Secretary and Sent to Association Members.

in many lines, they realized their independence and put in practice a plan of co-operation which is now referred to with satisfaction by all concerned. This did not involve entering into any hard and fast agreements or the fixing of any prices; it consisted merely in taking

Measures for Mutual Protection

against well defined and distinctly foreseen evils which without such protection would be almost certain to develop as a result of existing conditions. This was done by the establishment of what for want of a better term was called a jobbers' clearing house, with the object of

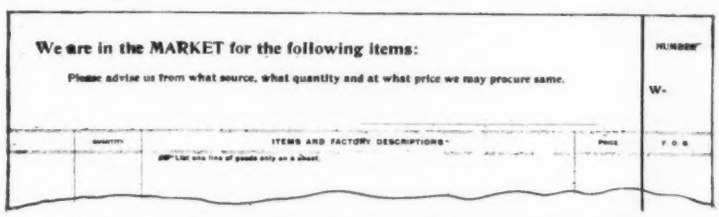

We are in the MARKET for the following items:
Please advise us from what source, what quantity and at what price we may procure same.
NUMBER
W-
QUANTITY
ITEMS AND FACTORY DESCRIPTIONS
PRICE
F. O. B.
List one line of goods only on a sheet.

Fig. 3.—Requirements Blank Sent by Member to Secretary.

reducing stocks of goods in the territory and conserving the local financial resources by obviating the necessity of placing orders in the East.

Heavy Stocks When Panic Struck.

Business through the spring and summer of 1907 had been very active, and at the time the panic struck stocks were heavy. With the resultant falling off in business nearly every one found themselves overloaded in certain lines of goods. Price reductions were imminent, and the natural result would have been a rush to unload, which would have brought about a disastrous break in prices. Instead, the sensible plan was adopted of helping each other to unload, an arrangement made possible by the organization and friendly understanding already existing. Through the secretary of their association, different houses notified each other as to the lines on which they were overstocked, and also those in which they were required to make purchases, the result being in many cases

An Exchange of Surplus Stock

on terms entirely favorable to both sides. In the Portland, Ore., Association blanks were prepared for the use of members in reporting and for the secretary in announcing overstock and needed goods. The same system was adopted by other local associations, and in some instances lists were then exchanged by the different association secretaries, thus broadening the field of operation. It is reported that the system worked without a hitch during the acute period of the stringency when all were trying to reduce their stocks and avoid as far as possible the placing of new orders with the manufacturers.

The Method of Operation

was as follows: A house that was overstocked on any item filled out blank No. 1, reproduced herewith, forwarding it to the secretary of the association. From these sheets he made up schedules on blank No. 2, furnishing one to every member. Those who could use any goods on the list notified him, and he placed them in communica-

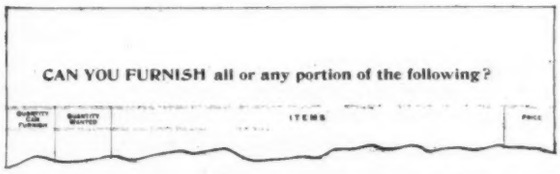


Fig. 4.—Blank Announcing Requirements Sent by Secretary to Members.

tion with the house carrying the overstock. Very much the same system was used when a house desired to make a purchase. Instead of sending his order East to the manufacturer, the buyer would fill out blank No. 3 and send it to the secretary, who in turn would make up a schedule on blank No. 4 and send copies to all members. If they could furnish any of the goods needed they would notify the secretay, and he would place buyer and seller in communication. Adjustments were generally on a basis of cost laid down, and it will be readily seen that frequent settlements by remittance were unnecessary, as exchanges were likely to be made both ways.

The Advantages of the Arrangement

were many and so obvious that they need only to be hinted at to be clearly understood by intelligent merchants. By distributing the stock already in the territory a material reduction was effected in the total amount which the territory was required to absorb. There was also a corresponding reduction in the amount of stock necessary for one house to carry, since in case of sudden shortage they could draw upon the surplus of their neighbors. Much greater stability was imparted to the local market, as houses were enabled to reduce their lines without resorting to the expedient of cutting prices. It may even be imagined that where a merchant was especially overloaded and made known the exigencies of his situation, his competitors would rather assist him by distributing the stock among themselves than have him throw the goods on the market at low prices.

When needing goods a jobber could sort up his stock without taking the quantity necessary to get favorable prices from the manufacturer and secure minimum transportation rates.

Another very patent benefit to the individual merchant, as well as to the community, was that of reducing outgoing remittances and keeping available funds in local circulation.

As a result of the arrangement it is safe to say that the houses on the Coast gained a new idea of the advantages of co-operation. The cordiality between them has been greatly increased, and, even though the present system is not continued in all its details, these broad gauge merchants have learned that they can come to-

gether and discuss matters which formerly would have been considered beyond the pale of discussion among business competitors.

Wanted: System for Repair Work.

OUR readers are invited to recommend to an inquiring Hardware firm a system for keeping track of repair work. Our correspondents mention the following as features of the system which they desire:

1. Book form arrangement enabling them to have a copy of each repair order taken, showing the detail of the work, costs, selling price, &c.

2. Detachable numbered tag which could be given to the customer and returned when the work was called for.

We shall be pleased to hear from the trade with advices which will be of service to our correspondents.

Price-Lists, Circulars, Etc.

Manufacturers in Hardware and related lines are requested to send us copies of catalogues, price-lists, &c., for our Catalogue Department in New York; and at the same time to call attention to any new goods or additions to their lines, of which appropriate mention will be made, besides the brief reference to the catalogue or price-list in this column.

F. D. KEES MFG. COMPANY, Beatrice, Neb.: Booklet devoted to Gossett Hinges for Screens and Storm Sash.

LAWRENCE BROS., Sterling, Ill.: Booklet presenting plain, strong selling points of their newer products, and illustrating No. 30 Steel Trolley Barn Door Hanger and No. 301 Trolley Rail and Colonial Hinge.

ISZARD-WARREN COMPANY, 1122 Vine street, Philadelphia, Pa.: Catalogue illustrating Sterling Transits and Levels, Engineering Field Equipments, Drafting Room Outfits and supplies.

IRELAND & MATTHEWS MFG. COMPANY, Detroit, Mich.: Catalogue and price-list illustrating Stove Ornaments, Nickel Stove Rings, Edges, Strips, Stove Knobs and Hinge Pins, Screw Draft Registers, Gas Mixers, Towel Racks, Shakers and Scrapers, Stove Bolts and Stove Rods.

NORDYKE & MARMON COMPANY, Indianapolis, Ind.: Budget of special catalogues covering an extensive line of milling machinery, including Grinding Mills, Rice and Corn Mill Machinery, Dusters, Sifters, Packers, Bolting Machinery, &c. Also catalogue of the Marmon Motor Car.

INTERNATIONAL CUTLERY COMPANY, Fremont, Ohio: Illustrated catalogue and price-list of handy size referring to Shears, Scissors, Razors and Strops, Tinners' Snips, Pruners, &c.

EVAN L. REED MFG. COMPANY, Sterling, Ill.: Illustrated catalogue No. 2B, referring to Hardware and Woodenware specialties.

PELOUZE SCALE & MFG. COMPANY, Chicago: Illustrated catalogue K, describing and listing the company's extensive line of family, postal, counter and confectionery Scales.

THE NEW ENGLAND HARDWARE DEALERS' ASSOCIATION has decided to hold a summer outing which will be a stag affair. The attendance of representatives of the different branches of the trade in New England, retail, wholesale and manufacturing, is invited. It is said that Davis' Indian Troupe and Abbe's Glee Club will be among the special features of the occasion, which is sure to be an interesting one. The date of the outing has not yet been chosen, but those who are desirous of participating in it may communicate with F. Alexander Chandler, chairman of the Committee of Arrangements, 36 Federal street, Boston, Mass.

THE HERCULEVER COMPANY, manufacturer of the Herculever Box and Case Opener, recently described in these columns, has taken offices and warerooms in the new Hardware Building, 106-110 Lafayette street, corner of Walker street, New York City.

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AMONG THE HARDWARE TRADE.

F. Midelburg, successor to the Kitsap Trading Company, Port Orchard, Wash., is erecting a new Hardware warehouse.

C. W. Hawes & Co., Leola, S. D., has purchased the Hardware and furniture department of the Leola Exchange.

Barry Hardware Company, Clovis, N. M., whose store and stock were destroyed by fire, have a new building in process of construction, which they hope to occupy by July 15.

Pierce-Field Hardware Company has succeeded Reed & Wyman Company, San Diego, Cal.

Harris & Wedick have purchased the Hardware, Stove, Paint and Sporting Goods business of Richards Hardware Company, Sugar City, Colo.

Williard Bros. & Holt's retail store, 715 Cherry street, Chattanooga, Tenn., was recently destroyed by fire, the loss being fully covered by insurance. Their new building is being erected as rapidly as possible, and the stock of Hardware and Paint is being replaced.

Merry Hardware Company has succeeded to the Hardware, Stove, Tinware, Sporting Goods, Harness and Vehicle business of Fraser-Moore Hardware Company, Stillwater, Okla.

Massie-Kelley Hardware Company has been incorporated with a capital of $6000 to conduct a retail Hardware, Stove, Tinware and Sporting Goods business at Frederick, Okla.

Peterson Brothers, Calamus, Iowa, have succeeded M. E. Peterson & Co., the members of the firm, however, remaining the same as before.

W. G. Arnold has purchased the interest of A. F. Meyer in McGrath Hardware Company, Hastings, Neb.

Miller Vidor Saw Mill Company is opening a Hardware store at Milvid, Texas.

As a result of the purchase by L. M. Annan of the interest of B. H. Quick in the Froyd-Quick Company, Moline, Ill., the name of the concern has been changed to the Froyd-Annan Hardware Company; the officers being A. E. Froyd, president and general manager; L. M. Annan, vice-president; A. N. Johnson, secretary and treasurer.

G. R. Werner has purchased the business of F. S. Lovitt, Colby, Kan., and will handle Shelf and Heavy Hardware, Agricultural Implements, Vehicles, Pumps and Windmills.

J. P. Strickler has succeeded to the business of Kruchek Bros., Waitsburg, Wash., and will handle Shelf and Heavy Hardware, Stoves, Tinware, Agricultural Implements, Paints, Bicycle Supplies and Harness.

Gross & Vincent have purchased the business of Labor & Wordy in Creston, Wash., and will handle Shelf and Heavy Hardware, Stoves, Tinware, Agricultural Implements, Paints, Oils and Sporting Goods. The firm will erect a brick building on the site of Labor & Worby's store, which was destroyed by fire. The new firm is now occupying temporary quarters.

Fire recently caused about $15,000 damage in the Hardware store of W. S. Kaulback, Malden, Mass.

J. D. Cotty, Cameron, Mo., has sold his Hardware, Stove, Paint and Sporting Goods business to G. A. Easterday.

Disston Plumb and Level No. 27.

Henry Disston & Sons, Philadelphia, Pa., have added to their line the plumb and level illustrated herewith. It is of solid cherry stock, natural finish. The end and top plates are of brass, fastened with brass screws. There are two brass lipped side and two brass lipped plumb views, and the tool is fully tested for accuracy. The level

Disston Plumb and Level No. 27.

and plumb glasses are set in brass tubing. Each tool is put up in a neat pasteboard box and lengths are assorted, 12, 14, 16 and 18 in. This same pattern plumb and level is made in longer lengths under Nos. 28 and 29, while Nos. 30 and 31 possess the additional feature of being adjustable.

Daisy Automatic Baster.

The Beaver Mfg. Company, Beaver, Pa., is manufacturing the self-basting roaster shown in the accompanying illustrations. It is made throughout of smooth, heavy sheet steel, well wired and handsomely finished on the outside of the pan with dead black coating. On the inside it has a coating of anti-rust. The handles are of heavy

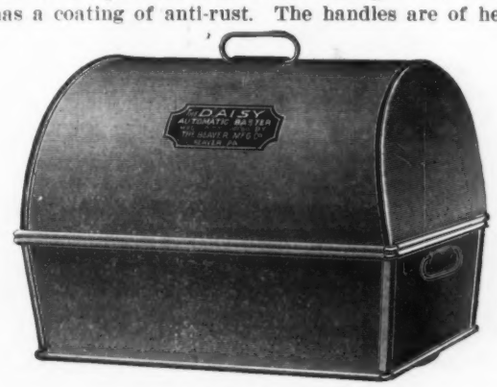


Fig. 1.—Daisy Automatic Baster.

coppered steel wire. It is stated that the pan affords ample room for a 14-lb. roast, being 16½ in. long, 10½ in. wide and 10 in. high. The percolator, which is the feature of the roaster, will be observed in Fig. 2. The pan has an inclined bottom, so that water which it contains runs down toward the percolator, while the roast rests on a level roasting plate which is raised above the bottom of the pan and keeps the meat out of the water. In using the roaster 2 quarts of water are poured into the pan, the roasting plate put in and the percolator set in place.

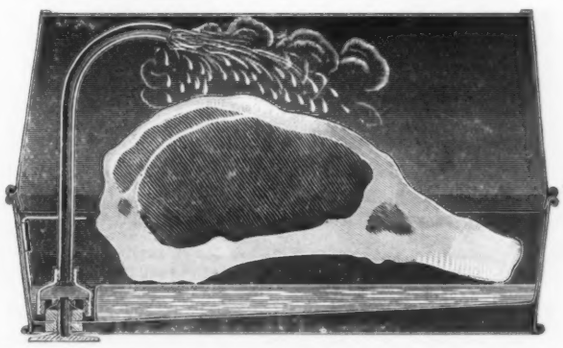


Fig. 2.—Interior of Baster, Showing the Operation of the Percolator.

The roast is then put in and the cover affixed. The roaster is put in the oven or on top of the range and allowed to remain the usual length of time required for cooking a roast. The water is boiled in the aluminum plate which is part of the percolator and bubbles up, raising and lowering the check valve and gradually forcing

the water up the pipe from which it is sprayed over the roast. It is explained that after the roast has been in the oven about ½ hr. enough water will evaporate to stop the percolator working, but there will still be enough water in the pan to prevent scorching even a large roast, which must remain in the oven 3 hr.

Hermetic Padlocks.

The Yale & Towne Mfg. Company, 9-15 Murray street, New York, has just introduced the Hermetic line of padlocks in three grades of the same general style, each having distinctive features which are principally in the locking mechanism. Fig. 1 illustrates the No. 726 Yale padlock, having the genuine Yale pin tumbler mechanism, each lock being fitted with four pin tumblers, capable of 144 key changes, and packed with two nickel-bronze Paracentric keys. Fig. 2 is a sectional view of the annular case, Fig. 3 showing the case complete and the keyway.

Fig. 1.—Yale Hermetic Padlock, Rear View.

This novel constructive principle eliminates exposed seams, joints and rivets. The annular case is a single member of cast metal, within the central opening of which are located the locking parts. Both sides of the lock are closed by a strong and rigid steel disk, each of which is expanded into a grooved seat in the case, thus hermetically sealing, as it were, all the interior parts against exposure to the elements or mechanical attack. This watch case principle of production affords no opportunity for slipping a tool into an exposed joint to force it open, and there are no rivets to file. In addition to these elements of security the locks are attractive in appearance. Having the same general features are the Cyclox, No. 526, and Loxol, No. 326, all at present having the uniform diameter of 2¼ in., but other sizes may be made later. The Yale

Fig. 2.—Section of Annular Case.

Fig. 3.—Case Complete and Keyway of "Yale" Model.

is 1 in. thick and the other two ⅞ in. The Cyclox is of the lever tumbler or secure lever type, having four double acting lever tumblers, 144 key changes and two flat steel nickel plated keys. The Loxol is warded with six key changes and two flat steel nickel plated keys. The shackle action of all is of the rotating type, the shackle when released being thrown upward a short distance automatically, when it is free to rotate in either direction, but on being pressed backward into position locks automatically. The shackle is made of steel rod, polished and nickel or brass plated. The annular lock case is of cast iron and the disks are of cold rolled steel. The "Yale" case is Bower-Barff finish, with bronze plated disks, Fig. 1 reproducing back of case, the front having "Yale" in a 1-in. circle. The Cyclox case is brass plated, oxidized, with rim surrounding disks relieved and steel disks of Libian black. The Loxol case is of Nubian finish and copper plated steel disks. All of the locks are listed as shown or with 9-in. chains, as desired.

Buffalo Scale Company.

The Buffalo Scale Company, Buffalo, N. Y., has added to its line new types of scales framed with steel, including heavy dormant scales from 8000 to 10,000 lb. capacity; also wagon, miner, railroad track and industrial scales with steel framing. The demand for this construction, it is stated, has become quite large in the last few years, and scales so framed are regarded as much superior to those framed with timber.

The Hendryx Mission Cage No. 8000.

A bird cage which is unique from the fact that it is a radical departure from the usual type of cages is illustrated herewith. It is put on the market by the Andrew B. Hendryx Company, New Haven, Conn., The cage is made of solid brass throughout, in mission style of con-

The Hendryx Mission Cage No. 8000.

struction, and finished in dull brass. It is 15¼ in. high and 8¾ in. square. Patents have been applied for on both the construction and design.

The Perfect Bread Maker.

The Wm. J. Witte Mfg. Company, 31 and 32 Park Row, New York, is manufacturing a bread mixer, which is used in connection with a pan, having a dough capacity of about eight loaves. The mixing rod is mounted on a detachable frame in such a manner as to allow it to be tilted out of the pan, so that the dough, after kneading, can be stripped from the rod by putting a little flour on the finger and pushing the mass off. At the same time the pan can be withdrawn from the frame and the mixture allowed to rise in the pan in which it is mixed. The mixer can be easily adjusted, and as quickly removed for cleaning. The mixing pan is kept in a permanent position while in use, by a hooked frame made of steel rod, which can be quickly secured to table or ledge, whether ½ in. or 2 in. thick. In operation as the mixing rod is revolved by a crank handle, it picks up the dough, which from its soft, spongy character tends to lag and travel slower than the mixing rod which draws through it, thus reaching in the operation eventually every part of the mass and distributing evenly the yeast and other ingredients with a comparatively small amount of labor. The retail price of the bread maker complete is $1.

The Marshalltown New Brick Trowel.

The Marshalltown Trowel Company, Marshalltown, Iowa, is placing on the market a new brick trowel designed to meet the most exacting requirements of bricklayers. Evenly balanced proportions is a feature that has been carefully considered in its design, particular attention having been given to the lift. The trowel is made of crucible trowel steel of superior quality, and it is asserted that no pains have been spared in finish and workmanship to make it a model tool. The various sizes in which it is furnished include blades 10, 10½, 11 and 11½ in. long, with 6-in. heels and leather handles.

The Marshalltown New Brick Trowel.

The Universal Knife Cleaner.

The accompanying illustrations represent a knife cleaner put on the market by Landers, Frary & Clark, New Britain, Conn. In Fig. 2 a view of the interior of the machine is shown, looking at it from the back. A are leather covered cleaning disks; B, screws to tighten disks; C, device for feeding flour of emery to the cleaning disks; D, trough for holding the emery, and E, screw for fastening machine to table. The machine is small and convenient, and is designed for brightening steel bladed knives. In use the blade of the knife is put between the cleaning disks, back downward, as shown in Fig. 1, and the blade is drawn toward the operator as the handle of the machine is turned. It is pointed out that by the use of the machine the table can be set for every meal with bright, clean, sharp knives, and with very slight addition to the household labor.

Fig. 1.—The Universal Knife Cleaner.

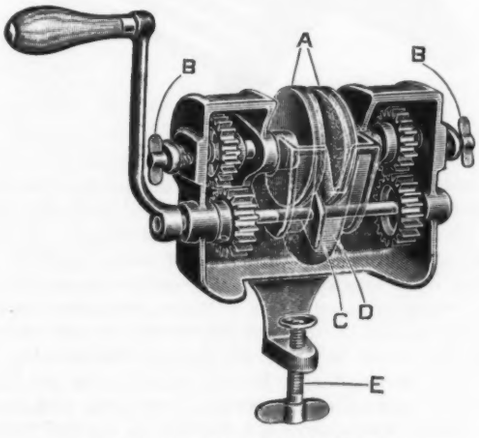


Fig. 2.—Interior of Knife Cleaner.

Buckeye Traps, Flanges and Valves.

The accompanying illustrations represent various new devices put on the market by Mast, Foos & Co., Springfield, Ohio. The sink trap, Fig. 1, designed for use with iron pipe. It can be readily attached, and is easily cleaned by removing the screw cap shown in the illustration. The makers state that the trap is cheaper and more conveniently used than lead pipe sink traps, and is guaranteed to give entire satisfaction. The flanges shown in Fig. 2 are for attaching force and lift pumps to well pipe or casing. No. 1 shows a flange to be used instead of the base on ordinary lift pumps, the large end slipping over the casing. No. 11 is for use with double acting pumps, the oval part of the flange supporting the base of pump bolted to it. No. 14 is used with lift or single acting pumps with round bases. The horizontal check valve shown in Fig. 3 is designed to overcome features of weakness in old style valves commonly used. It is well made, with brass valve seat and poppet valve, while the cap in the top gives easy access to the working parts without disturbing the pipe. The vertical union check valve, Fig. 4, is made with union connection, so that the valve can be dismantled without disturbing any of the pipes.

Fig. 1.—Buckeye Cast Iron Sink Trap 293.

No. 1. No. 11. No. 14.

Fig. 2.—Buckeye Pump Flanges.

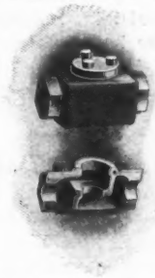


Fig. 3.—Buckeye Horizontal Check Valve 292.

Fig. 4.—Buckeye Vertical Union Check Valve.

Carver Tool Works.

In the new catalogue of the Carver Tool Works, Spring Valley, N. Y., which is now being distributed, will be noted several additions to the company's line. Among these may be mentioned knurled nail sets, knurled tinners' and center punches, tile setters' hammers and chisels, brick hammers and slate roofers' hammers and rippers. All of the tools are described by the manufacturers as being of high quality and finish and approved shape, and it is believed that they will fully maintain the reputation of the company's other lines of tools.

The Bergman Improved Corner Bit Brace.

Bergman Hardware & Tool Company, 19-21 Douglas street, Buffalo, N. Y., is making the corner bit brace shown in the accompanying illustrations, de-

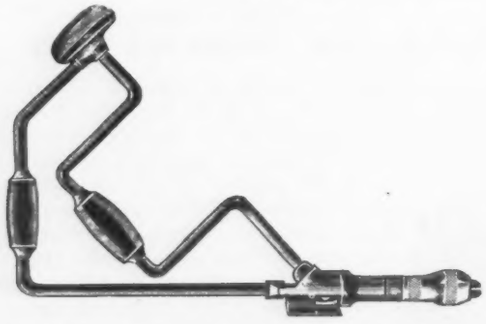


Fig 1.—The Bergman Improved Corner Bit Brace.

signed for the use of electricians, steam fitters, plumbers, bell hangers, telephone workmen, pattern-makers, vehicle builders and mechanics generally. The device is referred to as taking the place of a breast drill and ratchet brace and as being especially useful in corner boring and between beams. The braces are made with the universal knuckle, shown in Fig. 2, enclosed in a sleeve so that the dirt and grit cannot enter

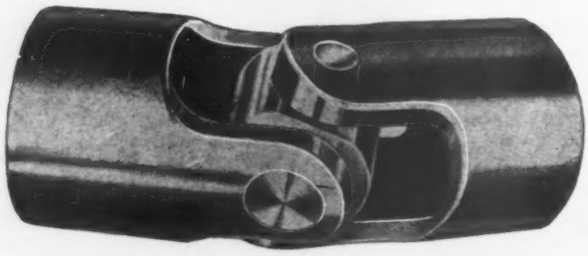
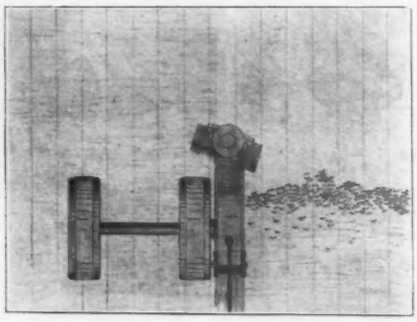


Fig. 2.—Hardened Steel Universal Joint.

the wearing parts. In Fig. 1 the brace is shown with the guard open. The universal joint is turned from solid bar steel and all bearings are hardened and fully tempered. The braces have forged jaws and all bearings are case hardened, with taper pins used throughout the construction.

The Johnson Adjustable Floor Scraper.

The floor scraper shown herewith, is manufactured by S. C. Johnson & Son, Racine, Wis. The illustration gives a view looking down upon the top of the scraper in operation. It is referred to as being built upon an entirely new line, in that it has a blade which can be ad-



The Johnson Adjustable Floor Scraper.

justed to any angle by the operator through the medium of a small lever on the handle. The machine, it is pointed out, will work with the knife at an extreme angle and any tendency which the machine might have to "skid" or go sideways is overcome by having the machine head on the outside of the wheels. It is pointed out that most of the weight is in the wheels where it properly belongs and which gives the operator complete control of the blade at all times.

The Blust Self-Recommending Churn.

The Constance Company, Mansfield, Ohio, is manufacturing the churn shown herewith. The body is made of thoroughly seasoned yellow poplar lumber, and is built up of narrow staves. The staves are not bent, but are

Fig. 1.—The Blust Self-Recommending Churn.

worked out of a thick board so as to form a perfect fit around the ends of the churn body. They are also made with deep tongues and grooves on the edges in order to make perfectly tight joints when fitted together. Before assembling the body every joint is given a heavy coating of pure white lead. The dasher, Fig. 2, which completely fills the churn body, is made of hard sugar wood, which, it is explained, will in no way effect the taste or color of the butter. The combined friction and compression bars are square and are set diagonally in relation to the dasher arms, making a series of wedge shaped slots in each

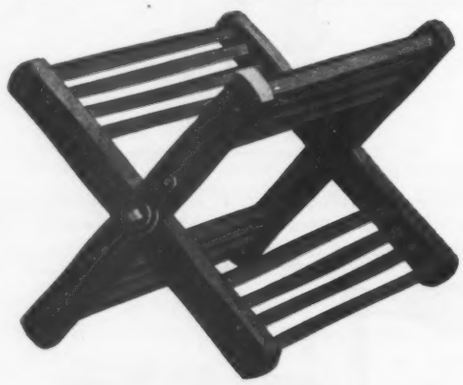


Fig. 2.—The Blust Dasher.

dasher wing. It is shown that as the dasher revolves the cream is forced through the wedged shaped openings, producing the friction and compression necessary for the complete separation and gathering of every particle of butter fat in the cream. The dasher can be placed in the churn or removed at any time without getting the hands in the cream, and butter may be worked in the churn, allowing the water to drain off through the opening at the bottom. In cleaning it is only necessary to put in a little boiling water, give the dasher a few turns and drain off the water. The churns are finished in natural wood, first having a coating of liquid filler, then a coat of high-grade varnish. The castings are of best quality iron, and the dasher castings are tinned, so as not to rust or to blacken the butter. The churns are carefully wrapped and securely crated before leaving the factory.

Acme Self-Computing Framing Tool.

The self-computing framing tool here shown is put on the market by E. Oehrle, 2567 Dodge street, Omaha, Neb. The tool is convenient to handle, and can readily be carried in the pocket, so that it may be at hand when wanted. Fig. 1 gives a view of the tool, while Fig. 2 indicates its application in connection with an ordinary steel square. The tool will give lengths and cuts for all common, hip, valley and jack rafters; lengths and cuts for all rafters for polygonal roofs up to 10 sides; as well as for all polygon miters and will be found of great value in laying out stairs. Stamped upon the tool is a scale for the polygon cuts referred to.

Fig 1.—Acme Self-Computing Framing Tool.

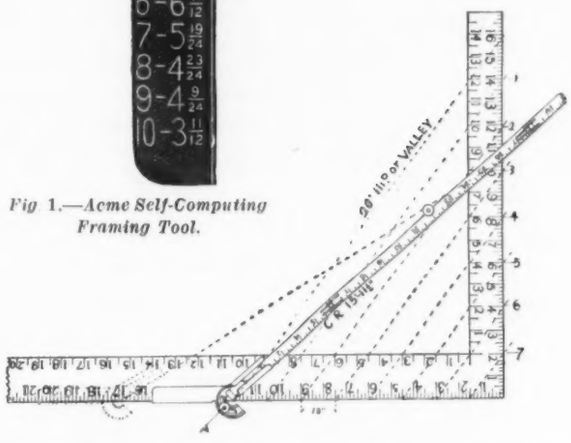


Fig. 2.—Showing Application of Tool in Finding Lengths and Cuts of Rafters.

The manufacturer claims that with the tool a mechanic can divide and substract, and that it can be used with a rule and a square. The corner of the rule always remains at the outer edge of the square, no matter in what position the rule may be swung. With each rule the manufacturer gives instructions fully explaining how to use it.

Roberts Doweling Jig.

The patented device shown herewith is designed for boring dowel holes, and is also useful for other purposes. It is put on the market by the Roberts Doweling Company, 3931 Lancaster avenue, Philadelphia, Pa. The jig can be quickly set in position, and holes can be bored without complicated measurements. The body of the jig is of iron and steel, and is held firmly in position on the work by means of a screw clamp, taking in work 3 in. in depth. The guide for the bit is held firmly in position by means of a thumb screw. There are five different guides of ¼, ⅜, ½, ⅝ and ¾ in. in diameter. These are of special cold drawn steel, and the bore is slightly larger than regular so as to permit of the entrance of a full size drill or bit. The guides can be rapidly changed so as to accommodate the different size bits or drills. In operation only a mark indicating the center line of the hole to be bored is required, the jig being placed on the work, with the center line marked on the jig conforming with that on the work, the guide can then be moved to the desired position, locked, and the hole bored with the usual brace and bit. To overcome boring the holes too deep, a movable depth gauge is supplied with the jig. The gauge is placed on the bit, at the depth of hole required after allowing 1¼ in. for the depth of the guide, it being held firmly in position by means of a screw clamp hook. The operation of the tool is very simple, the guides permitting of perfectly accurate boring, it being impossible to bore crooked or to have the bit diverted by hard or soft grain. The device is substantially made, full nickel plated, and weighs 1 lb. 3 oz., and is packed in a waterproof carton.

Roberts' Doweling Jig

PAINTS, OILS AND COLORS

Animal, Fish and Vegetable Oils—

	℔ gal.
Linseed, State and Western, raw	.41 @42
City, Boiled	.45 @46
City, Raw	.44 @45
Raw, Calcutta, in bbls	.70 @..
Lard, Prime, Winter	.68 @69
Extra No. 1	.54 @56
No. 1	.47 @52
Cotton-seed, Crude, f.o.b. mill	@..
Summer Yellow, prime	.47 @47½
Summer White	.49 @50
Yellow Winter	.49 @49½
Tallow, Acidless	.52 @55
Menhaden, Brown, Strained	.38 @..
Southern	.28 @..
Light Strained	.38 @..
Bleached Winter	.40 @..
Ex. Bleached Winter	.42 @..
Cocoanut, Ceylon ℔ lb	6⅝@ 6½
Cochin ℔ lb	7⅛@ 7⅝
Cod, Domestic, Prime	.42 @44
Newfoundland	.43 @45
Red, Elaine	.37 @39
Saponified ℔ lb	5½@ 5¾
Olive, Yellow	.66 @67
Neatsfoot, Prime	.55 @58
Palm, Lagos ℔ lb	5¾@ 6

Mineral Oils—

	℔ gal.
Black, 29 gravity, 25@30 cold test	.13 @13½
28 gravity, 15 cold test	.13½@14
Summer	.12½@13
Cylinder, light filtered	.20½@21
Dark, filtered	.18 @19
Paraffine, 903-907 sp. gravity	.14½@15
903 sp. gravity	.13½@14
883 sp. gravity	.11 @11½
Red	.13½@14

Miscellaneous—

Barytes:	
White, Foreign ℔ ton	$18.50@20.50
Amer., floated ℔ ton	18.00@20.00
Off color ℔ ton	13.00@16.50
Chalk, in bulk ℔ ton	3.00@ 3.40
China Clay, Imported ℔ ton	11.50@18.00

	℔ gal.
Cobalt, Oxide ℔ 100 lb	1.45@ 2.60
Whiting, Commercial ℔ 100 lb	.42@ .52
Gilders ℔ 100 lb	.55@ .60
Ex. Gilders ℔ 100 lb	.60@ .65

Putty, Commercial—℔ 100 lb

In bladders	$1.70 @1.80
In bbls. or tubs	1.20 @1.45
In 1 lb to 5 lb cans	2.65 @2.95
In 12½ to 50 lb cans	1.50 @1.90

Spirits Turpentine—℔ gal.

In Oil bbls	.42 @42½
In machine bbls	.42½@43

Glue—

	℔ lb
Cabinet	.12 @15
Common Bone	.7½@ 9
Extra White	.18 @24
Fish, liquid, 50 gal. bbls., per gallon	.60 @1.20
Foot Stock, White	.12 @14
Foot Stock, Brown	.9 @11
German Common Hide	.10 @12
German Hide	.12 @18
French	.10 @40
Irish	.13 @16
Low Grade	.10 @12
Medium White	.14 @17

Gum Shellac—

	℔ lb
Bleached, Commercial	.28 @29
Bone Dry	.35 @36
Button	.30 @40
Diamond I	.47 @48
Fine, Orange	.34 @35
A. C. Garnet	.28 @29
G. A. L.	.20 @21
Kala Button	.18 @19
D. C.	.48 @49
Octagon B	.39 @40
T. N	.29½@32
V. S. O	.47 @48

Colors in Oil—

	℔ lb
Black, Lampblack	.12 @14
Blue, Chinese	.36 @46
Blue, Prussian	.32 @36
Blue, Ultramarine	.13 @16
Brown, Vandyke	.11 @14
Green, Chrome	.12 @16
Green, Paris	.. @24
Sienna, Raw	.12 @15
Sienna, Burnt	.12 @15
Umber, Raw	.11 @14
Umber, Burnt	.11 @14

White and Red, Lead &c.—

	℔ lb
Lead, English white, in Oil	.10½@10⅝
Lead, American White:	
Dry and in Oil, 100, 250 and 500 lb kegs	7
Dry and in Oil, 25 and 50 lb kegs	7¼
Dry and in Oil, 12½ lb kegs	7½
In Oil, 25 lb tin pails	7½
In Oil, 12½ lb tin pails	8
In Oil, 1, 2, 3 and 5 lb tin cans, ass't	9
Red Lead and Litharge:	
In 100 lb kegs	7
In 25 and 50 lb kegs	7¼
In 12½ lb kegs	7½
In lots of less than 500 lbs, ½¢ ℔ lb advance over above prices.	

Lead, American, Terms: On lots of 500 lbs and over, 60 days, or 2% for cash if paid in 15 days from date of invoice.

Zinc, Dry—

	℔ lb
American, dry	5¼@ 5⅝
Red Seal (French process)	6¾@ 7
Green Seal	7¼@ 7½
German Red Seal (French process)	6½@ 6⅞
Green Seal	7½@ 7⅝
White Seal	7⅞@ 8¼
French, Red Seal	8¼@ 8⅝
Green Seal	10¼@10½

Dry Colors—

	℔ lb
Black, Carbon	.6½@10
Black Drop, American	.3½@ 8
Black Drop, English	.5 @15
Black, Ivory	.16 @20
Lamp, commercial	.4 @ 6
Blue, Celestial	.4 @ 6
Blue, Chinese	.31 @33
Blue, Prussian	.29 @31
Blue, Ultramarine	.3½@15
Brown, Spanish	½@ 1
Carmine, No. 40	$3.10@3.25
Green, Chrome, ordinary	.3½@ 5
Green, Chrome, pure	.17 @25
Ocher, American ℔ ton	$8.50@16.00
American Golden	.2¼@ 3¼
French	.1¼@ 2
Foreign Golden	.3 @ 4
Orange Mineral, English	.10 @12
French	.12¾@13
German	.12 @13
American	.9 @10
Red, Indian, English	.4½@ 6
American	.3 @ 3¼
Red, Turkey, English	.4 @10
Red, Tuscan, English	.7 @10
Red, Venetian, Amer. ℔ 100 lb	$0.50@1.25
English ℔ 100 lb	$1.15@1.60
Sienna, Italian, Burnt and Powdered	.3 @ 9
Italian, Raw, Powdered	.3 @ 7
American, Raw	.1½@ 2
American Burnt and Pow'd.	1½@ 2
Talc, French ℔ ton	$18.00@25.00
American ℔ ton	15.00@25.00
Terra Alba, French ℔ 100 lb	.90@ 1.00
English ℔ 100 lb	.80@ 1.00
American ℔ 100 lb, No. 1	.75@ .80
American ℔ 100 lb, No. 2	.60@ .65
Umber, T'key, Bnt. & Pow.	2¾@ 3
Turkey, Raw and Powdered	2¾@ 3
Burnt, American	1½@ 2
Raw, American	1½@ 2
Yellow, Chrome, Pure	.13¾@15
Vermilion, American Lead	.7 @25
Quicksilver, bulk	.65 @..
Quicksilver, bags	@66
English, Imported	.65 @70
Chinese	$0.90@1.00

Current Hardware Prices.

General Goods.—In the following quotations General Goods—that is, those which are made by more than one manufacturer—are printed in *Italics*, and the prices named, unless otherwise stated, represent those current in the market as obtainable by the fair retail Hardware trade, whether from manufacturers or jobbers. Very small orders and broken packages often command higher prices, while lower prices are frequently given to larger buyers.

Special Goods.—Quotations printed in the ordinary type (Roman) relate to goods of particular manufacturers, who are responsible for their correctness. They usually represent the prices to the small trade, lower prices being obtainable by the fair retail trade, from manufacturers or jobbers.

Range of Prices.—A range of prices is indicated by means of the symbol @. Thus 33⅓ @ 33⅓ & 10% signifies that the price of the goods in question ranges from 33⅓ per cent. discount to 33⅓ and 10 per cent. discount.

Names of Manufacturers.—For the names and addresses of manufacturers see the advertising columns and also THE IRON AGE DIRECTORY, issued May, 1907, which gives a classified list of the products of our advertisers and thus serves as a DIRECTORY of the Iron, Hardware and Machinery trades.

Standard Lists.—"The Iron Age Standard Hardware Lists" contains the list prices of many leading goods.

Additions and Corrections.—The trade are requested to suggest any improvements with a view to rendering these quotations as correct and as useful as possible to Retail Hardware Merchants.

Adjusters, Blind—
Columbian and Domestic....33⅓%
North's 10%
Zimmerman's—See Fasteners, Blind.

Window Stop—
Ives' Patent....35%
Taplin's Perfection....35%

Ammunition—See *Caps, Cartridges, Shells, &c.*

Anti—Rattlers—
Fernald Mfg. Co. Burton Anti-Rattlers, ℔ doz. pairs, Nos. 1, $0.75; 2, $0.60; 4, $1.00; 5, $0.50.
Fernald Quick Shifter, ℔ doz. pairs ....$2.00@$3.00

Anvils—American—
Eagle Anvils....℔ lb @8½¢
Hay-Budden, Wrought....9½@9¾¢
Trenton ....℔ lb 9½@9¾¢

Imported—
Swedish Solid Steel Sisco, Superior, ℔ lb....10@10½¢
Peter Wright & Sons, ℔ lb, 84 to 349 lb, 11¢; 350 to 600 lb, 11½¢.

Anvil, Vice and Drill—
Millers Falls Co., $18.00....15&10%

Apple Parers—See *Parers, Apple, &c.*

Aprons, Blacksmiths'—
Livingston Nail Co....10%

Augers and Bits—
Com. Double Spur....75&10@80%
Jennings' Patn., Bright.65&10@70%
Black Lip or Blued...65@65&5%
Boring Mach. Augers....70%
Car Bits, 12-in. twist....40&10%
Ford's Auger and Car Bits....40&5%
Ft. Washington Auger Co., Conard's 35%
Forstner Pat. Auger Bits....25%
C. E. Jennings & Co.:
No. 10 ext. lip. R. Jennings' list, 25&7½%
No. 30, R. Jennings' list....50%
Russell Jennings'....25&10&2½%
L'Hommedieu Car Bits....15%
Mayhew's Countersink Bits....45%
Pugh's Black....20%
Pugh's Jennings' Pattern....35%
Snell's Auger Bits....60%
Snell's Bell Hangers' Bits....60%
Snell's Car Bits, 12-in. twist....60%
Snell's King Auger Bits....50%
Wright's Jennings' Bits....50%

Bit Stock Drills—
See *Drills, Twist.*

Expansive Bits—
Clark's Pattern, No. 1, ℔ doz., $26; No. 2, $18....60&10%
Ford's, Clark's Pattern....66⅔&5%
C. E. Jennings & Co., Steer's Pat..25%
Lavigne Pat., small size, $18.00; large size, $26.00....60&10%
Swan's 60%

Gimlet Bits—
Per gro.
Common Dbl. Cut....$3.00@3.25
German Pattern, Nos. 1 to 10, $4.75; 11 to 13, $5.75

Hollow Augers—
Bonney Pat., per doz..$5.50@6.00
Ames ....2&10%
Universal 20%

Ship Augers and Bits—
Ship Augers....40&10@—%
Ford's ....33⅓&5%
C. E. Jennings & Co.:
L'Hommedieu's 6%
Watrous' ....33⅓&7½%
Snell's 48%

Awl Hafts—See *Handles, Mechanics' Tool.*

Awls—
Brad Awls:
Handled ....gro. $2.75@3.00
Unhdled, Shldered..gro.63@66¢
Unhandled, Patent..gro.66@70¢
Peg Awls:
Unhandled, Patent..gro. 31@34¢
Unhdled, Shldered..gro. 65@70¢
Scratch Awls:
Handled, Com...gro. $3.50@4.00
Handled, Socket..gro.$11.50@12.00

Awl and Tool Sets—See *Sets, Awl and Tool.*

Axes—
Single Bit, base weights: Per doz.
First Quality....$4.75@5.00
Second Quality....$4.25@4.50
Double Bit, base weights:
First Quality....$7.00@7.50
Second Quality....$6.50@6.75

Axle Grease—
See *Grease, Axle.*

Axles—Iron or Steel.
Concord, Loose Collar...4¼@4½¢
Concord, Solid Collar....4½@5 ¢
No. 1 Common, Loose...3½@4 ¢
No. 1½ Com., New Style.4¼@4¾¢
No. 2 Solid Collar....4¼@4¾¢
Half Patent:
Nos. 7, 8, 11 and 12....70%
Nos. 13 to 14....70%
Nos. 15 to 18...70&10@70&10&5%
Nos. 19 to 22...70&10@70&10&5%

Boxes, Axles—
Common and Concord, not turned ....lb., 5@6¢
Common and Concord, turned, lb., 6@7¢
Half Patent....lb., 9½@10¢

Bait—Fishing—
Hendryx:
A Bait....20%
B Bait....25%
Competitor Bait....20&5%

Balances—Sash—
Caldwell new list....50&10%
Pullman ....50&10%

Spring—
Light Spring Balances..60@60&5%
Chatillon's:
Light Spg. Balances....50@50&10%
Straight Balances....40@40&10%
Circular Balances....50&10%
Large Dial....30%

Barb Wire—See *Wire, Barb.*

Bars—Crow—
Steel Crowbars, 10 to 50 lb.... per lb., 2¼@2½¢

Towel—
No. 10 Ideal, Nickel Plate..℔ gro. $8.50

Beam, Scale—
Scale Beams....40%
Chattillon's No. 1....30%
Chatillon's No. 2....40%

Beaters, Carpet—
Holt-Lyon Co.:
No. 12 Wire Coppered ℔ doz. $0.80; Tinned $0.85
No. 11 Wire Coppered ℔ doz. $1.15; Tinned $1.20
No. 10 Wire Tinned....℔ doz. $1.50

Beaters Egg—
Dover Stamping & Mfg. Co.:
Genuine Dover, per gro., No. 1, Tumbler Size, $7.50; No. 2, Family Size, $7.50; No. 3, Extra Family Size, $24.00; No. 4, Hotel Size, $30.00.
Holt-Lyon Co.:
Holt, per doz., No. 5, Jap'd $0.80; No. A, Jap'd, $1.15; No. B, Jap'd, $1.85; No. 6, Jap'd, $1.65.
Lyon, Jap'd, per doz., No. 2, $1.35.
Taplin Mfg. Co.:
Improved Dover, per gro., No. 60, $6.00; No. 75, $6.50; No. 100, $7.00; No. 102, Tin'd, $8.50; No. 150, Hotel, $15.00; No. 152, Hotel Tin'd, $17.00; No. 200, Tumbler, $8.50; No. 202, Tumbler Tin'd, $9.50; No. 300, Mammoth, per doz., $25.00.

Bellows—
Blacksmith, Standard List:
Split Leather....60&10@65%
Grain Leather....50@5&10%

Net Prices.

Hand—

Inch..	6	7	8	9	10
Doz..	$5.00	5.50	6.00	6.50	7.50

Molders—

Inch..	10	12	14	16
Doz..	$7.50	9.00	12.00	15.00

Bells—Cow—
Wrought Cow Bells....75%
Jersey ....75&10%
Texas Star....50%

Door—
Home, R. & E. Mfg. Co.'s....55&10%

Hand—
Polished, Brass....60@60&10%
White Metal....60@60&10%
Nickel Plated....50&10%
Swiss ....50&10%
Cone's Globe Hand Bells....33⅓@33⅓%

Miscellaneous—
Farm Bells....lb., 2¼@2¼¢
Church and School....60@60&10%

Belting—Leather—
Standard ....70&10@70&10&5%
Light ....75&10%
Cut Leather Lacing..60@60&10%
Leather Lacing Sides, per sq. ft. 20¢

Rubber—
Competition (Low Grade), 70&10@75%
Standard ....60&10@70%
Best Grades....40@50%

Bench Stops—
See *Stops, Bench*

Benders and Upsetters, Tire—
Green River Tire Benders and Upsetters 20%

Bicycle Goods—
John S. Leng's Son & Co.'s 1907 list:
Chain, Parts, Spokes....50%
Tubes 60%

Bits—
Auger, Gimlet, Bit Stock Drills, &c.—See *Augers and Bits.*

Blocks—Tackle—
Common Wooden....75@75&5%
B. & L. B. Co.:
Boston Wood Snatch, 50%; Eclipse Steel, 75%; Hollow Steel, 50&10%; Star Wire Rope, 50%; Tarbox Metal Snatch, 50%; Tarbox New Style Steel, 50&10%; Wire Rope Snatch, 50%.
Lane's Patent Automatic Lock and Junior 30%
See also Machines, Hoisting.

Boards, Stove—
Paper and Wood Lined....55%
Embossed 55%

Boards, Wash—
See *Washboards.*

Bobs, Plumb—
Keuffel & Esser Co....33⅓%

Bolts
Carriage, Machine, &c.—
Common Carriage (cut thread):
⅜ x 6 and smaller..75&5@—%
Larger and longer....70@—%
Phila. Eagle, $3.00 list...80@—%
Bolt Ends....70@—%
Machine (Cut Thread):
⅜ x 4 and smaller..75&10@—%
Larger and longer....70@—%

Door and Shutter—
Cast Iron Barrel, Japanned, Round Brass Knobs:

Inch	3	4	5	6	8
Per doz..	$0.30	.35	.45	.60	.80

Cast Iron Spring Foot, Jap'd:

Inch	6	8	10
Per doz..	$1.20	1.50	2.25

Cast Iron Chain, Flat, Japanned:

Inch	6	8	10
Per doz..	$1.00	1.40	1.65

Cast Iron Flat Shutter, Jap'd, Brass Knobs:

Inch	6	8	10
Per doz..	$0.75	.95	1.25

Wrought Barrel Japanned, 80&10@80&10&5%
Barrel Bronzed....60&10%
Spring ....70&10@70&10&10%
Shutter ....50&5@50&10&5%
Square Neck....75@75&10%
Square ....70&10&10@80%
Ives' Patent Door....55%
Ives' Wrought Metal....45%

Expansion—
F. H. Evans' Crescent....40@60%
Richards Mfg. Co....55&10%
Steward & Romain Mfg. Co.:
Style No. 13, Double....60%
Style No. 1, Single....60%
Style No. 100, Dbl. Jaw, Single..55%
Lag Screw....66⅔%

Plow and Stove—
Plow ....65&5@70%
Stove ....85@85&5%

Tire—
Common Iron....80@80&5%
Norway Iron....80@80&5%
American Screw Co.:
Norway Phila., list Oct. 16, '84...80%
Eagle Phila., list Oct. 16, '84...82½%
Bay State, list Dec. 28, '99....80%
Franklin Moore Co.:
Norway Phila., list Oct. 16, '84...80%
Eagle Phila., list Oct. 16, '84...82½%
Eclipse, list Dec. 28, '99....80%
Russell, Burdsall & Ward Bolt & Nut Co.:
Empire, list Dec. 28, '99....80%
Norway Phila., list Oct. '84....80%
Eagle 82½%
Shelton Co.:
Tiger Brand, list Dec. 28, '99....80%
Phila., Eagle, list Oct. 16, 1884..82½%
Upson Nut Co.:
Tire Bolts....72½%

Borers, Bung—
Borers Bung, Ring, with Handle:

Inch	1¼	1½	1¾	2
Per doz..	$4.80	5.60	6.40	8.00
Inch	2¼	2½		
Per doz	$8.65	11.50		

Enterprise Mfg. Co., No. 1, $1.25; No. 2, $1.75; No. 3, $2.50 each....25%

Boxes, Mitre—
C. E. Jennings & Co....25%
Langdon, New Langdon and Langdon Improved, 20&10%; Langdon Acme ....15&10%
Perfection 40%
Seavey 45%

Braces—
Comman Ball, American....$1.50
Barber's ....50&10&10@60&10%
Fray's Genuine Spofford's....60%
Fray's No. 61, 166, 206, 614....50%
C. E. Jennings & Co....50&5%
Mayhew's Ratchet....60%
Mayhew's Quick Action Hay Pat...50%
Millers Falls Drill Braces....25&10%
P., S. & W. Co., Peck's Pat....60&10%

Brackets—
Wrought Steel..75&10@75&10&10%
Bradley Metal Clasp...80&10@80&10&...
Griffin's Pressed Steel....75@75&10%
Griffin's Folding Brackets....70&10%
Taplin Victor Handy Egg Beater Bracket ....℔ doz. $1.50

Bright Wire Goods—
See *Wire and Wire Goods.*

Broilers—
Kilbourne Mfg. Co....75&20%
Wire Goods Co....75%

Buckets, Galvanized—
M'fr's list, price per gross.

Quart..	10	12	14
Water, Reg...	26.85	29.50	33.50
Water, Hvy...	45.35	48.00	52.00
Fire, Rd. Btm..	32.00	34.65	38.65
Well 37.35	41.35	45.35	

10&7½&5&5%

Bull Rings—See *Rings, Bull.*

Butts—Brass—
Wrought, High List, Oct. 26,'06.55%
Cast Brass, Tiebout's....40%

Cast Iron—
Fast Joint, Broad....40&10&10%
Fast Joint, Narrow....40&10&10%
Loose Joint....70&10@75%
Loose Pin....70&10@75%
Mayer's Hinges....70@70&5
Parliament Butts....70@70&5

Wrought Steel—
Bright.
Light Narrow, Light Reversible ....70&5%
Reversible and Broad..70&5%
Loose Joint, Narrow, Light Inside Blind, &c....70%
Back Flaps, Table Chest..65% Japanned.
Light Narrow, Loose Pin, 40&5%
Light Narrow, Ball Tip..60%
Broad ....40&5%
Steeple Tipped....70%
Ball Tipped....70%

Extra, 10@—

Cages, Bird—

Hendryx Brass: Series 3000, 5000, 1100, net list; 1200, 15%; 200, 300, 900 ..... 30%
Hendryx Bronze: Series 700, 800.... 30%
Hendryx Enameled..... 35%

Calipers—See *Compasses.*

Calks, Toe and Heel—

Blunt, 1 prong, per lb. ....1@1½¢
Sharp, 1 prong, per lb...4½@5¢
Burke's, Blunt, 4@4¾¢; Sharp, 4½@4¾¢
Lautier, Blunt, 4@4¾¢; Sharp, 4½@4¾¢
Perkins', Blunt, ℔ lb, 3.65¢; Sharp, 4.15¢

Can Openers—

See *Openers, Can.*

Caps, Percussion—

Eley's E. B......52@55¢
G. D......*per M* 34@35¢
F. L......*per M* 40@42¢
G. E......*per M* 48@50¢
Musket.....*per M* 62@63¢

Primers—

Berdan Primers, $2 per M..20&5%
Primer Shells and Bullets..15&10%
All other primers per M..$1.52@1.60

Carpet Stretchers—

See *Stretchers, Carpet.*

Cartridges—

Blank Cartridges:
32 C. F., $5.50.....10&5%
38 C. F., $7.00.....10&5%
22 cal. Rim, $1.50.....10&5%
32 cal. Rim, $2.75.....10&5%
B. B. Caps, Con. Ball, Swgd..$1.90
B. B. Caps, Round Ball.....$1.40
Central Fire.....25%
Target and Sporting Rifle..15&5%
Primed Shells and Bullets..15&10%
Rim Fire, Sporting.....50%
Rim Fire, Military.....15&5%

Casters—

Bed.....65&10@70%
Plate.....60&5@60&10%
Philadelphia.....70&1 @75%
Acme, Ball Bearing.....30%
Gem (Roller Bearing).....70&10&10&5%
Steel Gem.....50%
Standard Ball Bearing.....45%
Yale (Double Wheel) low list...40&10%

Cattle Leaders—

See *Leaders, Cattle.*

Chain, Proof Coil—

American Coil, Straight Link:

3-16	¼	5-16	⅜	7-16	½	⅝
$8.15	5.55	4.60	3.95	3.75	3.65	3.55

¾-⅞-1 1⅛ to 1¼ inch.
$3.45 3.55
In cask lots, deduct 25¢.
German Coil.....60@60&5%
German Pattern Coil:
6-0 to 1.....70&5@70&10%
2 and 3..60&10&10@60&10&10&5%
4, 5 and 6.....50&10@50&10&5%

Halter—

Halter Chains.....60&5@60&10%
German Pattern Halter Chains, list July 24, '97....60&10&5@70%
Covert Mfg. Co.:
Halter.....35&5%

Cow Ties—

See *Halters and Ties.*

Trace, Wagon, &c.—

Traces, Western Standard: 100 pr.
6½—6-3, Straight, with ring..$28.00
6½—6-2, Straight, with ring..$29.00
6½—8-2, Straight, with ring..$32.00
6½—10-2, Str'ght, with ring..$37.00
NOTE.—Add 2c per pair for Hooks Twist Traces: add per pair for Nos. 2 and 3, 2c; No. 1, 3c; No. 0, 4c to price of Straight Link.
Eastern Standard Traces, Wagon Chain, &c...60&10@60&10&5%

Miscellaneous—

Jack Chain, list July 10, '93:
Iron.....68&10&7½%
Brass.....65%
Safety and Plumbers' Chain..75%
Gal. Pump Chain....*lb.*, 4½@5%
Bridgeport Chain Co.:
Triumph Halter and Coil..35&2½@40%
Triumph Dog.....50&10@60%
Brown Halter and Coil....45@50&5%
Covert Mfg. Co.:
Breast, Halter, Heel, Rein, Stallion.....40%
Oneida Community:
American Halter, Dog and Kennel Chains.....35&2½@40%
Niagara Dog Leads and Kennel Chains.....45@50&5%
Wire Goods Co.:
Dog Chain.....70%
Universal Dbl.-Jointed Chain.....50%

Chain and Ribbon, Sash—

Oneida Community:
Steel Chain.....60%
Pullman:
Bronze Chain, 60%; Steel Chain, Coppered.....60&10%
Sash Chain Attachments, per set..8¢
Aluminoy Sash Ribbon, per 100 ft.....$2.00@$5.00
Sash Ribbon Attachments, per set..8¢

Chalk—(From Jobbers.)

Carpenters' Blue.....*gro.*, 50¢
Carpenters' Red.....*gro.*, 45¢
Carpenters' White.....*gro.*, 40¢

Checks, Door—

Bardsley's.....45%
Pullman, per gro.....$54.00
Russwin.....33⅓%

Chests, Tool—

American Tool Chest Co.:
Boys' Chests, with Tools.....55%
Youths' Chests, with Tools.....40
Gentlemen's Chests, with Tools..30%
Farmers', Carpenters, etc., Chests, with Tools.....20%
Machinists' and Pipe Fitters' Chests, Empty.....45%
Tool Cabinets.....45%
C. E. Jennings & Co.'s Machinists' Tool Chests.....7½%

Chisels—

Socket Framing and Firmer

Standard List.....80&10@—%
Buck Bros.....30%
C. E. Jennings & Co.:
Socket Firmer No. 10.....25&7½%
Socket Framing No. 15.....25&7½%
Swan's.....66⅔@70%
L. & I. J. White & Co.....30@30&5%

Tanged—

Tanged Firmers.....30&5@35%
Buck Bros.....30%
C. E. Jennings & Co. Nos. 191, 181..25%
L. & I. J. White Co.....25&5%

Cold—

lb.
Cold Chisels, good quality..13@15¢
Cold Chisels, fair quality..11@12¢
Cold Chisels, ordinary....9@10¢

Chucks—

Almond Drill Chucks.....35%
Almond Turret Six-Tool Chuck.....40
Beach Pat. each $8.00.....35&5
Empire.....25
Blacksmiths'.....25
Jacobs' Drill Chucks.....35
Pratt's Positive Drive.....25
Skinner Patent Chucks:
Independent Lathe Chucks.....35%
Universal, Reversible Jaws.....35
Combination, Reversible Jaws.....35
Drill Chucks, New Model, 25%; Standard, 45%; Skinner Pat. 25%; Positive Drive.....10
Planer Chucks.....20
Face Plate Jaws.....35
Standard Tool Co.:
Improved Drill Chuck,.....45%
Union Mfg. Co.:
Combination, Nos, 1, 2, 3, 4, 5, 6, 7, 8 and 17, 40%; No. 21.....35%
Scroll Combinations, Nos. 83 and 84.....35
Geared Scroll, Nos, 33, 34 and 35..25
Independent Iron, Nos. 18 and 318..35
Independent Steel, No. 64.....25
Union Drill, Nos. 000, 00, 100, 101, 102, 103, 104.....35
Union Czar Drill.....25
Universal, 11, 12, 16, 17, 13, 14, 15..40
Universal No. 42.....35
Iron Face Plate Jaws, Nos. 28, 30, 48 and 50.....35%
Steel Face Plate Jaws, Nos. 70 and 72.....30%
Westcott Patent Chucks:
Lathe Chucks.....50%
Little Giant Auxiliary Drill.....50
Little Giant Double Grip Drill..50
Little Giant Drill, Improved.....50
Oneida Drill.....50%
Scroll Combination Lathe.....50%
Whitaker Mfg. Co.:
National Drill.....25%

Clamps—

Adjustable Hammers.....20@20&5%
Carriage Makers', P., S. & W. Co.....50&10%
Besly, Parallel.....33⅓&10%
Myers' Hay Rack.....45%
Lineman's Swedish Neverturn.....65%
Wood Workers' Hammers.....40&10%
Saw Clamps, see Vises, Saw Filers'

Cleaners, Drain,

Iwan's Champion, Adjustable.....50%
Iwan's Champion, Stationary.....40%

Sidewalk—

Star Socket, All Steel..℔ doz. $4.05 net
Star Shank, All Steel..℔ doz. $3.24 net
W. & C. Shank, All Steel, ℔ doz., 7½ in., $3.00; 8 in., $3.25.

Cleavers, Butchers'—

Foster Bros.....30%
Fayette R. Plumb.....30%
L. & I. J. White Co.....30%

Clippers, Horse and Sheep—

Chicago Flexible Shaft Co.:
1902 Chicago Horse, each..$10.75
20th Century Horse, each...$5.00
Lightning Belt Horse, each.$15.00
Chicago Belt Horse, each..$20.00
Stewart's Enclosed Gear Horse, each.....$6.75
Stewart's Patent Sheep Shearing Machine, each.....$12.75
Stewart Enclosed Gear Shearing Machine, No. 8, each..$9.75
} 25%

Clips, Axle—

Regular Styles, list July 1, '07.
80&80&10%

Cloth and Netting, wire

—See *Wire, &c.*

Cocks, Brass—

Hardware list:
Plain Bibbs, Globe, Kerosene, Racking, Liquor, Bottling, &c.....75%
Compression Bibbs.....70%

Coffee Mills—

See *Mills, Coffee.*

Collars, Dog—

Nickel Chain, Walter B. Stevens & Son's list.....40%
Leather, Walter B. Stevens & Son's list.....40%

Compasses, Dividers, &c.

Ordinary Goods.....70&10@75%

Conductor Pipe,—

L. C. L. to Dealers:

	Gal. Steel.	*Charcoal*
Northeastern	70&10%	50&10&7½%
Eastern	75%	50&10&7½%
Pittsburgh	75&10&5%	60%
Central	75&10%	60%
Northwestern	75&7½%	60%
Western	70&12½%	50&12½%
Tennessee	70&10%	50&12½%
Southern	70%	50&12½%
Southwestern	70%	50&5%

Terms, 60 days: 2% cash 10 days. Factory shipments generally delivered.
See also Eave Troughs.

Coolers, Water—

L. & G. Mfg. Co.:

Gal.	2	3	4	6	8
Galvanized, ea.	$1.85	$2.00	$2.25	$2.90	$3.90
Galvanized, Lined, side handles, Gal.	2	3	4	6	8
Each	$1.95	$2.15	$2.40	$3.30	$4.15

White Enameled.....10%
Agate Lined.....10%

Coppers' Tools—

See *Tools, Coppers'.*

Coppers, Soldering—

Soldering Coppers, 3 lb. to pair and heavier, 20¢; lighter than 3 lb. to pair.....22¢

Cord— Sash—

Braided, Drab.....*lb.* 35¢
Braided, White, Com., Nos. 8 to 12, 20¢; No. 7, 20½¢; No. 6, 21½¢. In lots of 12 doz. or over, 1 cent less per pound.
Cable Laid Italian, lb., No. 18..37¢
Italian, lb., A, No. 18, 25¢; B, 22¢
Common India.....*lb.*, 11@11½¢
Cotton Sash Cord, Tw'ted..18@20¢
Patent Russia.....*lb.*...20¢
Cable Laid Russia.....*lb.*...21¢
India Hemp, Br'd'd.....*lb.*...21¢
India Hemp, Twisted...*lb.*13@14½¢
Patent India, Twisted..*lb.*...17¢
Pearl Braided, cotton, No. 6, ℔ lb. 27½¢; No. 7, 26½¢; Nos. 8 to 12, 26¢; 7, 26½; 6, 27½¢.
Eddystone Braided, Nos, 8 to 12, 26¢; 7, 26½; 6, 27½¢.
Harmony Cable Laid Italian, Nos. 7 to 10.....℔ lb 23¢
Pullman:
Wire Sash Cord.....10%
Sash Cord Attachments, per 100..$2.00
Samson, Nos. 8 to 12:
Braided, ℔ lb., Drab Cotton, 55¢; Italian Hemp, 40¢@50¢; Linen, 65¢; White Cotton, 50¢; Spot Cord.....50¢
Massachusetts, White...℔ lb 40¢
Massachusetts, Drab...℔ lb 45¢
Phoenix, White, Nos 8 to 12....27¢
} 25%
Silver Lake, per lb.:
A, Drab, 45¢; A, White, 40¢; B, Drab, 40¢; B, White, 35¢; Italian Hemp, 40¢; Linen....57½¢
See also Chain and Ribbon.

Wire, Picture—

Full Length.....90@—%
Short Length.....90&20@—%
Hendryx Standard Wire Picture Cord, old list, 85&10%
Turner & Stanton Co. Wire Picture Cord.....90%

Cradles—

Grain.....5%

Crayons—

White Round Crayons, Cases, 100 gro., $8.00, $8.50 and $9.00 according to grade.
Zelnicker's Lumber: ℔ gro.
White and Purple, Indelible....$7.50
Blue, Red, Green, Yellow and Terra Cotta, $6.50; Black.....$4.50
Giant Lumber, 5¼ in. x 15-16 in. round, all colors, $12.00; Indelibles, $14.00; Blacks.....$10.00
Genuine Soapstone, Metal Workers', 5 in. x ¼ in. Round, $2.50; 5 in. x ½ in. Square, $1.75; 5 x ½ x 3-16, $2.50; 5 x 1¼ x 3-16.....$3.00
Suremark, Black, $2.25; Blue, Red and Yellow.....$2.50

Crooks, Shepperds'—

Fort Madison, per doz., Heavy, $5.50; Light.....$5.00

Crow Bars—See *Bars, Crow.*

Cultivators—

Victor Garden.....50%

Cutlery, Table—

International Silver Company:
No. 12 M'd'm Knives, 1847..℔ doz. $3.50
Star, Eagle, Rogers & Hamilton and Anchor.....℔ doz. $3.00
Wm. Rogers & Son.....℔ doz. $2.50

Cutters— Glass—

H. H. Mayhew Co.....40%
Red Devil.....60%
B. Mfg. Co.....40%
Woodward.....50%

Meat and Food—

American.....30%

Nos.	401	402	403	404	405	406	407
Each	$5	$7	$10	$12	$25	$50	$60

Enterprise:

Nos.	5	10	12	22	32	
Each	$2	$3	$2.75	$4.50	$5	25@25&7½%

No. 202, $1.50.....40&7½%
P., S. & W. Co.:
Dixon's.....℔ doz. 33⅓%

Nos.	1	2	3	4
	$14.00	$17.00	$19.00	$33.00

Ideal.....40@10&5%
Hales.....60&10&5%
Little Giant.....℔ doz. 40@50%

Nos.	305	310	312	320	322
	$35.00	$48.00	$44.00	$72.00	$68.00

New Triumph No. 605, ℔ doz. $24.00, 40&10%
Russwin Food, No. 1, $24.00; No. 2, $27.00.....45&10&10%
Enterprise Beef Shavers.....$15.00 $18.00
Enterprise Beef Shavers.....25@30%

Slaw and Kraut—

Henry Disston & Sons:
Slaw and Kraut Cutters.....35%
Corn Graters.....30%
J. M. Mast Mfg. Co.:
Slaw Cutters, 1 Knife....℔ doz. $3.00
Combined Slaw Cutter and Corn Grater.....℔ doz, $4.00

Tobacco—

All Iron, Cheap...*doz, $1.25@4.50*
Enterprise.....25@30%
National, ℔ doz., No. 1, $21; No. 2, $18.....40%

Diggers, Post Hole, &c—

Disston's:
Rapid, ℔ doz., $24.00.....25%
Samson, ℔ doz., $34.00.....25%
Iwan's Imp'ved Post Hole Anger..40%
Vaughan Pattern Post Hole Augers, ℔ doz., $7.00
Perfection Post Hole Diggers, ℔ doz.....$8.75
Split Handle Post Hole Diggers, ℔ doz., $7.75
Hercules Pattern, ℔ doz.....$10.00
Kohler's, ℔ doz., Universal, $15.00; Little Giant, $12.00; Hercules, $10.00; Invincible, $9.00; Rival, $8.50; Pioneer.....$7.50
Never-Break Post Hole Diggers, ℔ doz., $24.00.....60%

Dividers—See *Compasses.*

Drawing Knives—

See *Knives, Drawing.*

Dressers Emery Wheel—

Sterling Emery Wheel Dressers.....35%
Sterling Wheel Dresser Cutters.....35%

Drills and Drill Stocks—

Blacksmith's Common Drilling Machines.....$1.50@1.75
Breast, Millers Falls.....15&10%
Breast, P., S. & W.....33⅓%
Goodell Automatic Drills 50&10@60&10%
Millers Falls Automatic Drills 33⅓&10%
Ratchet, Curtis & Curtis.....25%
Ratchet, Parker's.....40%
Ratchet, Weston's.....40%
Ratchet, Weston's, Style H Improved.....40%
Ratchet, No. 012.....40%
Ratchet, Celebrated.....40%
Ratchet, Whitney's, P., S. & W., 50&5%
Whitney's Hand Drill, No. 1, $10.00; Adjustable, No. 10, $12.00.....33⅓%

Twist Drills—

Bit Stock.....70@70&5%
Taper and Straight Shank, 60&10@70%

Drivers, Screw—

Screw Driver Bits, per doz...45@50¢
Balsey's Screw Holder and Driver, ℔ doz., 2½-in., $6; 4-in., $7.50; 6-in., $9.....50%
Buck Bros.' Screw Driver Bits.....30%
Champion.....50%
Disston's.....70%
Fray's Hol. H'dle Sets, No. 3, $12..50%
Ford's Brace Screw Drivers....40&10%
Gay's Double Action Ratchet.....35%
Goodell's Auto.....65@65&10%
Mayhew's Black Handle.....40%
Mayhew's Monarch.....40%
Millers Falls, Nos. 20 and 21....25&10%
Millers Falls, Nos. 11, 12, 41, 42..15&10%
Smith & Hemenway Co.'s Neverturn, 66⅔%; Elmora, [illegible]ar. 30&10%
Swan's:
Nos, 7565 to 7567 [illegible]%; No. 7540, 40&10%

Eave Trough, Galvanized—

Territory...	*Gal. Steel.*	*Charcoal. Iron.*
Northeastern	75&10&5%	60&10%
Eastern	80&2½%	60&20%
Pittsburgh	80&20%	65&10%
Central	80&10&10&2½%	65&10%
Northwestern	80&10&10%	65&10%
Western	80&10%	60&10&5%
Tennessee	80&5%	60&10&5%
Southern	80%	60&10&5%
Southwestern	75&10&2½%	60&5%

Terms.—2% for cash. Factory shipments generally delivered.
Note.—Lower prices are made in some sections.
See also Conductor Pipe and Elbows.

Elbows and Shoes—

Factory shipments, all territories:

	Galv. Steel and Galv. C. I.
Standard Gauge	85@85&10%
No. 26	50%
No. 24	25%
No. 22	10%

Elbows, Stove Pipe—

Edwards, Standard Blue....40&10&10%
Edwards, Royal Blue.....10&10&10%
Reeves, Dover, one piece.....40&10%

Emery, Turkish—

	¼ to ½:	*5½ to 20:*	*Flour.*
Kegs.....*lb.*	5¢	5¼¢	3¼¢
½ Kegs.....*lb.*	5¼¢	5¾¢	3¾¢
¼ Kegs.....*lb.*	5½¢	6¢	4¢
10-lb. cans, 10 in case....6½¢	7¢	6¢	
10-lb. cans, less than 10.....10¢	10¢	8¢	
Less quantity..10¢	10¢	8¢	

NOTE.—In lots 1 to 3 tons a discount of 10% is given.

Extractors, Lemon Juice—

—See *Squeezers, Lemon.*

Fasteners, Blind—

Zimmerman's .....50&10%
Walling's .....40&10%
Upson's Patent.....40%

Cord and Weight—

Ives and Titan.....33⅓%

Corrugated—

Acme Corrugated Fasteners.....70%

Faucets—

Cork Lined.....50&10@60%
Metallic Key, Leather Lined, .. 60&10@70%
Red Cedar.....40&5@40&10&5%
Petroleum .....70&10@75%
B. & L. B. Co.:
Metal Key.....60&10%
Star 60%
West Lock.....50&10%
John Sommer's Peerless Tin Key....40%
John Sommer's Boss Tin Key.....50%
John Sommer's Victor Mtl. Key.50&10%
John Sommer's Duplex Metal Key..60%
John Sommer's Diamond Lock.....40%
John Sommer's I.X.L. Cork Lined..50%
John Sommer's Reliable Cork Lined.. 50&10%
John Sommer's Chicago Cork Lined.60%
John Sommer's O. K. Cork Lined...50%
John Sommer's No Brand, Cedar....50%
John Sommer's Perfection, Cedar....40%
Self Measuring:
Enterprise, ₱ doz. $36.00.....40&10%
Lane's, ₱ doz. $36.00.....40&10%
National Measuring, ₱ doz. $36.40&10%

Felloe Plates—

See *Plates, Felloe.*

Files— Domestic—

List Nov. 1, 1899.
Best Brands.....70&10%175&10%
Standard Brands.....75&10%80%
Lower Grade....75&10&10@80&10%

Imported—

Stubs' Tapers, Stubs' list, July 24, '97.....33⅓@40%

Fixtures, Fire Door—

Allith Underwriters' Approved.....50%
Richards Mfg. Co.:
Universal, No. 103; Special, No. 104 .....$3.75
Fusible Links, No. 96.....50%
Expansion Bolts, No. 107.....65&10%

Grindstone—

Net Prices:

Inch	*15*	*17*	*19*	*21*
Per doz.	*$3.60*	*3.85*	*4.15*	*4.65*

P., S. & W. Co.....25%
Reading Hardware Co.....65%

Fodder Squeezers—

See *Compressors.*

Forks—

NOTE.—Manufacturers are selling from the list of September 1, 1903, but many jobbers are still using list of August 1, 1899, or selling at net prices.
Iowa Dig-Ezy Potato.....60&10%
Victor, Hay.....60&15&2½%
Victor, Manure.....66⅔%
Victor, Header.....65%
Champion, Hay.....66⅔%
Champion, Header.....65%
Champion, Manure.....60&15&2½%
Columbia, Hay.....60&20%
Columbia, Manure.....70%
Columbia, Spading.....70&12½%
Hawkeye Wood Barley.....40%
W. & C. Potato Digger.....60&10%
Acme Hay.....60&20%
Acme Manure, 4 tine.....60&10&5%
Dakota Header.....60&20%
Jackson Steel Barley.....60&20%
Kansas Header.....65%
W. & C. Favorite Wood Barley....40%
Plated.—See Spoons.

Frames— Wood Saw—

White, S'g't Bar, per doz.75@80%
Red, S'g't Bar, per doz. $1.00@1.25
Red, Dbl. Brace, per doz.$1.40@1.50

Freezers, Ice Cream—

Qt.....	*1*	*2*	*3*	*4*	*6*
Each....	*$1.25*	*$1.60*	*$1.90*	*$2.20*	*$2.80*

Fruit and Jelly Presses—

See *Presses, Fruit and Jelly.*

Fry Pans—See *Pans, Fry.*

Fuse— *Per 1000 Feet.*

Hemp $2.75
Cotton 3.20
Waterproof Sgl. Taped..3.65
Waterproof Dbl. Taped..4.40
Waterproof Tpl. Taped..5.15
} 10&2½%

Gates, Molasses and Oil—

Stebbins' Pattern.....80@80&5%

Gauges—

Marking, Mortise, &c..50@50&10%
Chapin-Stephens Co.:
Marking, Mortise, &c.....50&50&10%
Disston's Marking, Mortise, &c..67½%
Wire, Brown & Sharpe's.....33⅓%
Wire, Morse's.....25%
Wire, P., S. & W. Co.....33⅓%

Gimlets— Single Cut—

Numbered assortments, per gro.
Nail, Metal, No. 1, $2.00; 2, $2.30
Spike, Metal, No. 1, $4.00; 2, $4.30
Nail, Wood Handled, No. 1, $2.30; 2, $2.60
Spike, Wood Handled, No. 1, $4.30; 2, $4.60

Glass, American Window

See *Trade Report.*

Glasses, Level—

Chapin-Stephens Co.....65@65&10%

Glue, Liquid Fish—

Bottles or Cans, with Brush, 25&10@50%
Elwell's 40%

Grease, Axle—

Common Grade...gro.$6.00@$6.50
Dixon's Everlasting, 10-lb. pails, ea. 85¢; in boxes, ₱ doz., 1 lb. $1.20; 2 lb. $2.00
Helmet Hard Oil.....25%

Griddles, Soapstone—

Pike Mfg. Co.....33⅓@33⅓&10%

Grinders—

Royal Mfg. Co.:
Alundum Grinding Machines, each, Nos. 01, $1.75; 1A, $2.50; 10, $5.00 .....30%
Alundum Sickle Grinders, each, Nos. 20, $5.00; 20A, $6.00; 20A Combined, $6.50.....30%
Alundum Disc Grinders, each, $2.50 .....30%

Grindstones—

Pike Mfg. Co.:
Improved Family Grindstones, ₱ inch, ₱ doz., $2.00.....33⅓%
Richards Mfg. Co., Eli and Cycle, Ball Bearing, mounted.....40%

Grips, Nipple—

Perfect Nipple Grips.....40&10&2%

Halters and Ties—

Cow Ties.....65@65&10%
Bridgeport Chain Co.:
Triumph Coil and Halters.35&2½@40%
Brown Coil and Halters...45@50&5%
Brown Cow Ties.....50&5@50&10&5%
Brown Tie Outs.....70&10@75&5%
Covert Mfg. Co.:
Web .....30&2%
Jute Rope.....35%
Sisal Rope.....23%
Cotton Rope.....45%
Hemp Rope.....45%
Oneida Community:
Am. Coil and Halters.....40@40&5%
Am. Cow Ties.....45@50%
Niagara Coil and Halters...45@50&5%
Niagara Cow Ties.....45&5@50&10&5%

Hammers—

Handled Hammers—

Heller's Machinists'....55&10@55&10&5%
Heller's Farriers'.....40&5@40&10&5%
Peck, Stow & Wilcox Co.:
Crucible Steel.....40&10%
Farriers' .....40&10%
Riveting .....40&10%
Machinists' .....60&10%
Blacksmiths' 50%
Fayatte R. Plumb:
A. E. Nail.....40&2½@40&12½%
Eng. and B. S. Hand.50&10&5@60&5%
Machinists' Hammers.....60@60&10%
Rivet and Tinners',40&7½@40&12½&5%

Heavy Hammers and Sledges—

Under 3 lb., per lb., 50¢...80&10%
3 to 5 lb., per lb., 40¢...80&10&10%
Over 5 lb., per lb., 30¢.....
Over 5 lb., per lb., 30¢.80&10&10%

Handles—

Agricultural Tool Handles

Axe, Pick, &c....60&10@60&10&5%
Hoe, Rake, &c.....40%
Fork, Shovel, Spade, &c.:
Long Handles.....40%
D Handles.....40%

Cross-Cut Saw Handles—

Atkins' 40%
Champion 50%
Disston's 50%

Mechanics' Tool Handles—

Auger, assorted...gro.$3.00@$3.50
Brad Awl.....gro.$1.65@$1.75
Chisel Handles, Ass'd, per gro.:
Tanged Firmer, Apple, $2.40@ $2.65; Hickory.....$2.15@2.40
Socket Firming, Apple, $1.75@ $1.95; Hickory.....1.60@1.75
Socket Framing, Hickory, $1.60@$1.75
File, assorted.....gro.$1.30@$1.40
Hammer, Hatchet, &c., 60&10@60&10&5%
Hand Saw, Varnished, doz., 80¢ 85¢; Not Varnished.....65@75¢
Plane Handles:
Jack, doz., 30¢; Fore, doz...45¢
Chapin-Stephens Co.:
Carving Tool.....30@30&10%
Chisel .....60@60&10%
File and Awl.....60@60&10%
Saw and Plane.....30@30&10%
Screw Driver.....30@30&10%
Millers Falls Adj. and Ratchet Auger Handles .....15&10%
Nicholson Simplicity File Handle.... ₱ gro. $0.85@$1.50
J. L. Osgood:
Indestructible File and Tool, ₱ gro., No. 1, $8.00; No. 2, $8.50; No. 3, $9.00; No. 4, $9.50; No. 5, $10.00.....gro. lots 10%
W. A. Zelnicker Supply Co.:
Hammer, ₱ doz. 12 in. $2.00; 14 in., $2.00; 16 in. $2.30; 18 12., $2.50; 20 in., $2.70; 22 in., $3.00; 24 in., $3.30; 26 in., $3.50; 30 in., $3.80.
Sledge, ₱ doz., oval, 30 in., $3.80; octagon, 30 in., $3.80; oval, 36 in., $4.00; octagon, 36 in., $4.00.
Axe, ₱ doz., 28 to 34 in., $5.60; 36 in., $5.80.
Adze, ₱ doz., 36 in., $5.80; 36 in., $7.80.
Pick, ₱ doz., R. R., 36 in., $8.00; coal, 34 in., $5.80.
Hatchet, ₱ doz., 12 to 14 in., $2.00.
} Extra 5&10% often given.

Hangers—

NOTE—Barn Door Hangers are generally quoted per pair, without track and Parlor Door Hangers per double set with track, &c.
Allith Mfg. Co.:
Reliable, Nos. 1 and 2; Allith, No. 3; Allith Adjustable, No. 6; Reliable Parlor Door.....50%
Chicago Spring Butt Co.:
Friction 25%
Oscillating 25%
Big Twin.....25%
Chisholm & Moore Mfg. Co.:
Baggage Car Door.....50%
Elevator 30%
Railroad 50%
Cronk & Carrier Mfg. Co.:
Loose Axle.....60&2½%
Roller Bearing.....70&2½%
Griffin Mfg. Co.:
Solid Axle, No. 10, $12.00..60&10%
Roller Bearing, No. 11, $15.00.. 61&10%
Roller Bearing, Ex. Hy., No. 22, $18.00.....61&10%
Bull Dog, $24.00.....70%
Lane Bros. Co.:
Parlor, Ball Bearing, $1.00
Standard, $3.15; No. 105, $2.85; New Model, $2.80; New Champion $2.25
Barn Door, Standard.....60&10%
Hinged .....net $6.08
Covered .....61&5%
Special .....70&5%
Lawrence Bros.:
Advance .....55&10%
Cleveland .....70&7½%
Clipper, No. 75.....60%
Crown .....55&10%
Cyclone, No. 40.....net $6.50
Tandem, No. 50.....net $7.50
New York.....55&10%
McKinney Mfg. Co.:
Roller Bearing, Nos. 1 and 2..70%
Anti-Friction 61%
Hinged Hangers, King Charm.60%
Richards Mfg. Co.:
Hangers, Nos. 47, 48, 147, 247, 60&5%
Pioneer Wood Track, No. 3..$2.25
Roller B'r'g St'l Track No. 12.$2.20
Roller B'r'g St'l Track No. 13.$2.50
Roller B'r'g, Nos. 39, 41, 43, 70&7½%
Hero, Adj. Track No. 19..50&10%
Adjustable Track Tandem Trolley Track No. 16.....50&10%
Seal, Steel Track No. 8.....$2.25
Auto Adj. Track No. 22..50&5%
Trolley B, D. No. 17, $1.25; F, D, No. 120, $2.25; No. 121, $2.45; No. 150.....$2.50
Safety Underwriters F. D. No. 101 .....50%
Tandem No. 44..2½ and 3 60&10%
Palace, Adjustable Track No. 132 .....50&5%
Royal, Adjustable Track No. 122 .....50&10%
Ives' Wood Track No. 1.....$2.25
Trolley B, D, No. 20.....50&10%
Trolley B, D, No. 24, $1.30; No. 27, $1.40; No. 28.....$1.60
Roller Bearings, Nos. 37, 38, 39, 41, 43, 44, Sizes 1 and 2.70&7½%
Anti-friction, No. 42; No. 44, sizes 2½ and 3.....60%
Hinged Tandem No. 48..60&5%
Folding Door B. B. Swivel No. 135 .....40%
Taylor & Boggis F'y Co.'s Kidder's Roller Bearing.50&15&10&5%
Myers' Stayon Hangers.....60%
} Extra 5&10% often given.

Hangers— Garment—

Pullman Trouser, ₱ gro., No. 1 $9.00; No. 4, $24.00; No. 5, $16.50; No. 8, Black Enamel, $7.50; No. 10, $21.00; No. 12, $8.00; No. 15, Rods, $9.00; No. 18, Loops.....$10.00
Victor Folding.....₱ gro. $9.60

Gate—

Myers' Patent Gate Hangers, ₱ doz. net $4.50

Joist and Timber—

Lane Bros. Co.....30%

Hasps—

Griffin's Security Hasp.....50&10%
McKinney's Perfect Hasp, ₱ doz..60%

Hatchets—

Regular list, first qual.40&12½@—
Second quality.....50&10&5@—

Heaters, Carriage—

Clark, No. 5, $1.75; No. 5B, $2.00; No. 3, $2.25; No. 3D, $2.75; No. 7D, $3.00; No. 3E, $3.25; No. 1, $3.50.....25%
Clark Coal, ₱ doz., $0.75.....20%

Hinges—

Blind and Shutter Hinges

Surface Gravity Locking Blind: (Victor; National; 1868 O. P.; Niagara; Clark's O. P.; Clark's Tip; Buffalo.)

No.	*1*	*3*	*5*
Doz. pair	*$0.75*	*1.35*	*2.70*

Mortise Shutter: (L. & P., O. S., Acme, &c.)

No.	*1*	*1½*	*2*	*2½*
Doz. pair	*$0.70*	*.65*	*.60*	*.55*

Mortise Reversible Shutter (Buffalo, &c.):

No.	*1*	*1½*	*2*
Doz. pair	*$0.70*	*.65*	*.60*

North's Automatic Blind Fixtures, No. 2, for Wood, $9.00; No. 3, for Brick, $11.50.....10%
Charles Parker Co.....70@75%
Parker Wire Goods Co.
Hale & Benjamin Automatic Blind Hinges 20%
Hale's Blind Awning Hinges, No. 110, for wood, $9.00; No. 111, for brick, $9.00.....20%
Reading's Gravity.....60%
Stanley's Steel Gravity Blind Hinges, No. 1647½, ₱ doz. sets, without screws, $0.95; with screws, $1.25.
Wrightsville Hardware Co.:
O. S., Lull & Porter.....75&5%
Acme, Lull & Porter.....75%
Queen City Reversible.....75%
Shepard's Noiseless, Nos. 60, 65, 55 .....75&5%
Niagara, Gravity Locking, Nos. 1, 3 & 5.....75&5%
Tip Pat'n, No. 1.....75&10%
No. 3.....75&5%
Buffalo Gravity Locking, Nos. 1, 3 & 5.....70&10&5%
Shepard's Double Locking.....75%
Champion Gravity Locking.....75&5
Pioneer .....75&10%
Empire 65%
W. H. Co.'s Mortise Gravity Locking, No. 2.....60&10%

Gate Hinges—

Clark's or Shepard's—Doz. sets:

No.	*1*	*2*	*3*
Hinges with L'f'chs.	*$2.00*	*2.70*	*3.60*
Hinges only	*1.25*	*1.90*	*3.00*
Latches only	*.70*	*.75*	*.75*

New England:
With Latch.....doz..@$2.00
Without Latch.....doz..@$1.40
Reversible Self-Closing:
With Latch.....doz..@$1.75
Without Latch.....doz.....@$1.35
Western:
With Latch..... doz. $1.75
Without Latch.....doz..$1.45
Wrightsville Hardware Co.:
Shepard's or Clark's Hinges and Latches, Hinges only or Latches only, Nos. 1, 2 or 3.....70%

Pivot Hinge—

Bommer Bros. Pivot.....40%
Lawson Mfg. Co. Matchless.....50%

Spring Hinges—

Holdback, Cast Iron...$6.75@$7.00
Non-Holdback, C'st Iron $6.50@$6.75
J. Bardsley:
Bardsley's Non-Checking Mortise Floor Hinges.....40%
Bardsley's Patent Checking.33⅓%
Bommer Bros.:
Bommer Ball Bearing Floor..40%
Bommer Spring Hinges.....40%
No. 999 Wrot. Steel Hold Back, ₱ gro. $9.00
Chicago Spring Butt Co.:
Chicago Spring Hinges.....25%
Triple End Spring Hinges....50%
Chicago (Ball Bearing) Floor.50%
Garden City Engine House....25%
Keene's Saloon Door.....25%
Columbian Hardware Co.:
Acme, Wrought Steel.....30%
Acme, Brass.....25%
American 30%
Columbia, ₱ gr., No. 14, $9.00; No. 18.....$25.00
Columbia, Adj., No. 7, ₱ gr. $12.00
Columbian Hinges.....60&10%
Gem, new list.....30%
Clover Leaf and Acorn, gro. lots, $5.10; ½ gro. lots.....$6.00
Oxford, new list.....30%
Floor Spring Hinges.....65&10%
Lawson Mfg. Co., Matchless....30%
Richards Mfg. Co.:
Superior Double Acting Floor Hinges 40%
Shelby Spring Hinge Co.:
Buckeye All Steel Holdback Screen Door.....₱ gr. $9.00
Chief Ball Bearings Floor Hinge 50%
Ball Bearing Door.....25%
No. 777, Sheet Steel Holdb'k, ₱ gr. pr.....$9.00
Standard Mfg. Co.:
Champion Double Acting Door Hinge .....25&10&10%
Standard Double Acting Floor Hinge .....25&10&10%
Superior Spring Hinge Co.:
Superior Floor Hinges.....33⅓%
} Extra 10% often given on most of these Hinges.

Wrought Iron Hinges—

Strap and T Hinges, &c., list December 20, 1904:
Light Strap Hinges..50&10%
Heavy Strap Hinges..60&5%
Light T Hinges.....50%
Heavy T Hinges.....40%
Extra Hvy. T Hinges.50&10%
Hinge Hasps.....33⅓%
Cor. Heavy Strap....60&5%
Cor. Ex. Heavy T...50&10%
} Extra 10&5%

Screw Hook and Strap. { *6 to 12 in..lb.3½¢* / *14 to 20 in..lb.3½¢* / *22 to 36 in..lb.3 ¢*

Screw Hook and Eye:
¾ to 1 inch.....lb.6½¢
⅝-inch .....lb.7½¢
½-inch .....lb.8½¢
} Extra 45%

Hitchers, Stall—

Covert Mfg. Co., Stall Hitchers..30&2%

Hods— Coal—

M'f'gr's list, price per gross:

Inch	*15*	*16*	*17*	*18*
Galv. Open	*$35*	*$39*	*$42*	*$46*
Jap. Open	*26*	*28*	*31*	*35*
Galv. Funnel	*43*	*48*	*52*	*56*
Jap. Funnel	*33*	*36*	*59*	*43*

} Extra 45%

Masons' Etc.

Cleveland Wire Spring Co.:
Steel Brick, No. 102.....each $1.05
Steel Mortar, No. 158.....each $1.35

Hoes— Eye—

Scovil and Oval Pattern, 60&10@60&10&10%
Grub, list Feb. 23, 1899, 70&10@70&10&10%
D. & H. Scovil.....27½%
Am. Fork & Hoe Co. (Scovil Pattern) 60%

Handled—

NOTE.—Manufacturers are selling from the list of September 1, 1904, but many jobbers are still using list of August 1, 1899, or selling at net prices.

Cronk's Weeding, No. 1,$2.00; No. 2,$2.50
Star Double Bit.....$3.20
Madison Cotton Hoe....70&10&10%
Ft. Madison Crescent Cultivator Hoe, ₱ doz.....70&10%
Ft. Madison Mattock Hoes:
Regular Weight.....₱ doz. 40&5%
Junior Size.....₱ doz. $4.00
Ft. Madison Sprouting Hoe, ₱ doz., 60&10%
Ft. Madison Dixie Tobacco Hoe.....75&10&7½%
Kretsinger's Cut Easy.....70&10%
Warren Hoe.....45&10%
W. & C. Ivanhoe.....75&2%
B. B. 6 in., Cultivator Hoe.....$3.40
B. B,. 6½ in.....$3.50
Acme Wedding.....₱ doz., net, $4.35
W. & C. L'tning Shuffle Hoe, ₱doz.$5.25

Hoisting Apparatus—

See *Machines, Hoisting.*

Holders— Bit—

Angular, ₱ doz, $2..0.....45&10%

Door—

Bardsley's, Iron, 40%; Brass and Bronze 25%
Empire 50%
Pullman 25%
Richards Mfg. Co.: No. 117, Ever-ready, 40%; Nos, 118, 119, Sure Grip 50%
Superior 33⅓%

File and Tool—

Nicholson File Holders and File Handles .....33⅓@40

Fruit Jar—

Triumph Fruit Jar Holder, ₱ gross, $18.00; ₱ doz.....$2.00

Trace and Rein—

Fernald Double Trace Holder, ₱ doz. pairs $1.25
Dash Rein Holder, ₱ doz. pairs.$1.25

Hones—Razor—

Pike Mfg. Co., Belgian and Swaty, 50%; German.....33⅓%

Hooks—Cast Iron—

Bird Cage, Reading.....40%
Clothes Line, Reading List.....40%
Coat and Hat, Reading.....45&20%
Coat and Hat, Wrightsville.....60&5%
Harness, Reading List.....40%

Wire—

Belt 80%
Wire C. & H. Hooks.....80%
Bradley Metal Clasp Wire, Coat and Hat, 70&10%; Ceiling.....70&10%
Columbian Hdw. Co., Gem.....70&5%
Parker Wire Goods Co., King..70&10%
Wire Goods Co.:
Acme, 60&10%; Chief, 70%; Crown, 75%; Czar, 65%; V Brace, 75%; Czar Harness, 50&10%.

Wrought Iron—

Box, 6 in., per doz., $0.90; 8 in., $1.15.
Cotton .....*doz. $1.25@$1.50*
Wrought Staples, Hooks, &c.—
See Wrought Goods.

Miscellaneous—

Hooks, Bench, see *Stops, Bench.*
Bush, Light, doz., $6.20; Medium, $6.75; Heavy, $7.65
Grass, best, all sizes, per doz., $2.75@$3.00
Grass, common grades, all sizes, per doz .....*$1.25@$1.50*
Whiffletree .....*lb. 5¾@6¢*
Hooks and Eyes:
Brass .....60@60&10%
Malleable Iron.....70@70&10%
Covert Mfg. Co. Gate and Scuttle Hooks 40%
Ft. Madison Cut-Easy Corn Hooks, ₱ doz. $3.25 net
Turner & Stanton Co, Cup and Shoulder .....85&10%
Bench Hooks—See Bench Stops.
Corn Hooks—See Knives, Corn.

orse Nails—

See *Nails, Horse.*

Horseshoes—

See *Shoes, Horses.*

Hose, Rubber—

Garden Hose, ¾-inch:
Competition .....*ft. 6@6½¢*
3-ply Guaranteed.....*ft. 8½@9¢*
4-ply Guaranteed....*ft. 9½@12¢*
Cotton Garden, ¾-in., coupled:
Low Grade.....*ft. 8@ 9¢*
Fair Quality.....*ft. 10@11¢*

Irons— Sad—

From ¼ to 10.....*lb. 2½@2¾¢*
B. B. Sad Irons.....*lb. 3¼@3½¢*
Mrs. Potts', cents per set:

	Nos. 50	55	60	65
Jap'd Tops	83	80	93	91
Tin'd Tops	88	85	98	95

New England Pressing..lb.3¾@4¢

Bar and Corner—

Richards Mfg. Co., Bar, 60&10%; Corner 60%

Pinking—

Pinking Irons.....*doz. 60@65¢*

Irons, Soldering

See *Coppers.*

Jacks, Wagons—

Covert Mfg. Co.:
Auto Screw.....30&2%; Steel, 45%
Lockport 50%
Lane's Steel.....30&5%
Richards' Tiger Steel No. 130...50&10%
Smith & Hemenway Co.'s.....25%

Ladder—

Richards Mfg. Co., Ladder Jacks..50%

Kettles—

Brass, Spun, Plain.....*20@25%*
Enameled and Cast Iron—See Ware, Hollow.

Knives—

Butcher, Kitchen, &c.—

Foster Bros.' Butcher, &c.....30%
Wilkinson Shear & Cutlery Co....60%

Corn—

Columbian Cutlery Co., Wilcut Brand Knives and Hooks.....60%
Withington Acme, ₱ doz., $2.65; Dent, $2.75; Adj. Serrated, $2.20; Serrated, $2.10; Yankee No. 1, $1.50; Yankee No. 2, $1.15.

Drawing—

Standard List.....*80&10@—%*
C. E. Jennings & Co., Nos. 45, 46, 25&7½%
Jennings & Griffin, Nos. 41, 42, 66⅔&7½%
Swan's .....66⅔@70
Watrous 16⅔%
L. & I. J. White.....20&5@25%

Hay and Straw—

Serrated Edge, per doz. $5.00@5.50
Iwan's Sickle Edge.....₱ doz. $9.50
Iwan's Serrated.....₱ doz. $10.00

Miscellaneous—

Farriers' .....*doz. $2.60@3.55*
Wostenholm's .....₱ doz, $3.00@3.25

Knobs—

Base, 2½-inch, Birch or Maple. Rubber Tip.....*gro. $1.25@1.40*
Carriage, Jap., Drive, all sizes, gro. 35@40¢
Door, Mineral.....*doz. 65@70¢*
Door, Por. Jap'd.....*doz. 70@75¢*
Door, Por. Nickel..*doz. $2.05@2.15*
Bardsley's Wood Door, Shutters, &c.15%

Lacing, Leather—

See *Belting, Leather*

Ladders, Store, &c.—

Allith Mfg. Co., Reliable.....50%
Lane's Store.....25%
Myers' Noiseless Store Ladders....50%
Richards Mfg. Co.:
Improved Noiseless, No. 112.....50%
Climax Shelf, No. 115.....50
Trolley, No. 109.....50%

Ladles, Melting—

L. & G. Mfg. Co. (low list).....20%
P., S. & W.....40&10%
Reading 60%

Lanterns—Tubular—

Regular, No. 0.....*doz. $4.35@4.50*
Side Lift, No. 0.....*doz. $4.60@4.75*
Hinge Globe, No. 0.doz. $4.60@4.75
Other Styles.....*40@40&10%*

Bull's Eye Police—

3-inch .....*$4.75@4.00*

Latches— Thumb—

Roggin's Latches, Jap'd, with Screws .....*doz. 35@40¢*

Door—

Allith Mfg. Co., Reliable and Alligator, 50%; Reliable Cold Storage, 50%
Cronk & Carrier Mfg. Co., No. 101, ₱ doz. $2.00
Richards' Bull Dog, Heavy, No. 125 .....50&5%
Richards' Trump, No. 127.....$1.50

Leaders, Cattle—

Small.....*doz. 59¢; large, 60¢*
Covert Mfg. Co.:
Cotton, 45%; Hemp, 45%; Jute, 35%; Sisal, 20%.

Leathers, Pump—

See *Pumps—*

Lifters, Transom—

R. & E.....10%

Lines—

Wire Clothes, Nos.	*18*	*19*	*20*
100 feet.....	*$2.30*	*1.95*	*1.75*
75 feet.....	*$1.95*	*1.65*	*1.50*

Samson Cordage Works:
Solid Braided Chalk, Nos. 0 to 3..40%
Solid Braided Masons'.....30%
Silver Lake Braided Chalk, No. 0, $6.00; No. 1, $6.50; No. 2, $7.00; No. 3, $7.50.....₱ gr. 20%
Masons' Lines, Shade Cord, &c.: White Cotton, No. 3½, $1.50; No. 4, $2.00; No. 4½, $2.50; Colors, No. 3½, $1.75; No. 4, $2.25; No. 4½, $2.75; Linen, No. 3½, $2.50; No. 4, $3.50; No. 4½, $4.50.....20%
Tent and Awning Lines: No. 5, White Cotton, $7.50; Drab Cotton, $8.50 .....20%
Clothes Lines, White Cotton: 50 ft., $2.75; 60 ft., $3.25; 70 ft., $3.75; 75 ft., $4.00; 80 ft., $4.25; 90 ft., $4.75; 100 ft., $5.25.....20%
Turner & Stanton Co.:
Solid Braided Chalk, Masons' and Awning Lines.....40%
Clothes Lines, White Cotton....20%
Shade Cord, Cotton or Linen....20%

Locks— Cabinet—

Cabinet Locks....*33⅓@33⅓@5%*

Door Locks, Latches, &c —

NOTE.—Net Prices are very often made on these goods.
Reading Hardware Co.....40%
R. & E. Mfg. Co.....10%

Padlocks—

R. & E. Mfg. Co. Wrought Steel and Brass .....75&10%

Sash, &c.—

Ives' Patent:
Bronze and Brass, 55&5%; Crescent, 60%; Iron, 60%; Window Ventilating, 40&20%; Robinson Pat. Ventilating Sash Lock 33⅓%.
Pullman Patent Ventilating Lock..25%
Reading Sash Locks.....40%

Machines—Boring—

Com. Upr't, without Augers. *$2.00@2.25*
Com. Angl'r, without Augers, $2.25@2.50
Swan's Improved.....40&10%
Jennings', Nos. 1 and 4.....25&7½%
Millers' Falls.....5.75
Snell's, Upright, $2.65; Angular, $2.90

Corking—

Reisinger Invincible Hand Power... ₱ doz, $48.00

Fence—

Williams' Fence Machines....each. $5.50

Hoisting—

Moore's Anti-Friction Chain Hoist.30%
Moore's Hand Hoist, with Lock Brake 20%
Moore's Cyclone High Speed Chain Hoist 25%

Ice Cutting—

Chandler's 12½%

Washing

Boss Washing Machine Co.:	Per doz.
Boss No. 1	$57.00
Boss Rotary	$57.00
Champion Rotary Banner No. 1	$57.00
Standard Champion No. 1	$50.00
Standard Perfection	$27.00
Cincinnati Square Western	$33.00
Uneeda American, Round	$33.60

Mallets—

Hickory .....*45&5@50%*
Lignumvitæ .....*45&5@50%*
Tinners' Hickory and Applewood .....*doz. 45&5@50%*

Mangers, Stable—

Swett Iron Works.....50%

Mats, Door—

Acme Flexible Steel.....50%
Elastic Steel (W. G. Co.), new list.50%

Mattocks—

See *Picks and Mattocks.*

Milk Cans—See *Cans, Milk.*

Mills, Coffee, &c.—

Enterprise Mfg. Co.....20@25%
National list Jan. 1, 1902.....30
Parker's Columbia and Victoria..33⅓%
Parker's Box and Side.....50&10%
Swift, Lane Bros. Co.....30%

Motors, Water—

Divine's Red Devil.....30%
Lippincott's 30%

Mowers, Lawn—

NOTE.—Net prices are generally quoted
Cheapest, 10-in., $2.00; advance 10¢ for each size.
Cheap, 10-in., $2.25; advance 15@20¢ for each size.
Better Grade, 10-in., $3.00; advance 25¢ for each size.

	12	*14*	*16*	*18 in.*
High Grade...	*$4.50*	*4.75*	*5.00*	*5.25*

Continental 60%
Great American.....70%
Great American Ball B'r'g, new list.70%
Quaker City.....70%
Pennsylvania 60%
Pennsylvania, Jr., Ball Bearing, 50&10&5%
Pennsylvania Golf.....50%
Pennsylvania Horse.....33⅓&5%
Pennsylvania Pony.....40&5%
Granite State:
Style A, Low Wheel.....70%
Style B, Low Wheel.....70%
Style C, High Wheel, spcl. list, 70&10%
Style D, High Wheel, spcl. list..70%
Philadelphia:
Styles M., S., C., K., T....70&10&5%
Style A, all Steel.....60&10&5%
Style E, High Wheel.....70&10&5%
Drexel and Gold Coin, special list.40%
Horse .....40&5%
Pony .....40&5%
36-in. Horse.....30&10%
Eagle Horse.....30&5%
I. X. L. Horse.....50%

Nails—

Wire Nails and Brads, Miscellaneous .....*85&5@85&10%*
Cut and Wire. See *Trade Report.*
Hungarian, Finishing, Upholsterers', &c. See *Tacks.*

Horse—

Nos.	6	7	8	9	10	
Anchor	23	21	20	19	18	...40&5%
Coleman	13	12	12	11	11	.....net
New Haven..	23	21	20	19	18	...40&5%
Livingston ..	19	18	17	16	16	.....10%

Western .....₱ lb 8½¢
Jobbers' Special Brands, per lb.9¢

Picture—

	1½	*2*	*2½*	*3 in.*
Brass Hd, gro.	*.45*	*.55*	*.60*	*.70*
Por. Head, gro. ..	*1.10*	*1.10*	*1.10*	

Upholsters—

Brass *30%*
Plated .....*30&10%*

Nippers—

See *Pliers and Nippers.*

Nipples—

Standard Nipple Co.:
Wrought Pipe Nipples....80@80&10%

Nuts— *Blank or Tapped.*

Cold Punched:	*Off list.*
Square	*5.40@5.50¢*
Hexagon	*6.00@6.10¢*
Square, C., T. & R.	*5.80@5.90¢*
Hexagon, C., T. & R.	*6.60@6.70¢*
Hot Pressed:	
Square	*5.80¢*
Hexagon	*6.30¢*

Oakum—

Best .....*lb. 6½¢*
U. S. Navy.....*lb. 6 ¢*
Navy .....*lb. 5 ¢*
Plumbers' Spun Oakum..2¾@3 ¢

Oil Tanks— See *Tanks, Oil.*

Oilers—

Steel, Copper Plated.....75%
Chase or Paragon:
Brass and Copper.....50&10%
Zinc .....65&10%
Railroad .....60&10&10%
Malleable, Hammers' Improved, Nos. 11, 12 and 13, 20%; Old Pattern, Nos. 1, 2, 3, 50%
American Tube & Stamping Co.:
Spring Bottom Cans.....70@70&10%
Railroad Oilers, &c.....60@60&10%
Maple City Mfg. Co.:
Spring Bottom Cans.....70@70&10%
Railroad Oilers, &c.....60@60&10%

Openers—Packing Box—

Herculever, ₱ doz., $24.....30%

Can Openers—

Per doz.
Sprague, Iron Handle....*30@35¢*
Sprague, Wood Handle.....*40¢*
Sardine Scissors.....*$1.75@3.00*
Yankee Can and Bottle Opener, ₱ doz., net, $0.75; Little Gem, ₱ doz,, net.....$0.65

Egg—

Hartigan Nickel Plate, ₱ doz., $2.00; Silver Plate, $4.00.

Packing—

Asbestos Packing, Wick and Rope, any quantity.....*18@20¢*

Rubber—

(Fair quality goods.)
Sheet, C. I......*11@12¢*
Sheet, C. O. S......*11@12¢*
Sheet, C. B. S......*12@13¢*
Sheet, Pure Gum.....*40@45¢*
Sheet, Red.....*40@50¢*
Jenkins' '96, ₱ lb, 80¢.....25%

Miscellaneous—

American Packing....*lb. 7@10 ¢*
Cotton Packing.....*lb. 16@25 ¢*
Italian Packing.....*lb. 9@10¢*
Jute .....*lb. 4@4¼¢*
Russia Packing.....*lb. 9@10¢*

Pails, Water, Well, &c.—

See *Buckets.*

Pans— Dripping—

Standard List.....*65&7½@70%*
Edwards, Royal Blue.....65&7½%

Fry—

Common Lipped:

Nos.	*1*	*2*	*3*	*4*	*5*
Per doz...	*$0.75*	*0.80*	*0.90*	*1.10*	*1.30*

Refrigerator, Galva.—

Inch	*12*	*14*	*16*	*18*
Per doz....	*$1.75*	*2.25*	*2.80*	*3.15*

Paper—Building Paper

Asbestos: lb.
Roll Board or Building Felt, 6 to 30 lb., per 100 sq. ft..2½¢
Roll Board or Building Felt, 3-32 and ⅛ in., 45 to 60 lb., per 100 sq. ft.....*3½¢*
Mill Board, Sheet, 40 x 40 in., 1-32 to ½ in.....*3¢*
Per roll.
Rosin Sized Sheathing: 500 sq. ft. Light weight, 25 lbs. to roll, $8@$8.50
Medium weight, 30 lbs. to roll. 56@70¢
Heavy weight, 40 lbs. to roll, 75@78¢
Black Water Proof Sheathing, 500 sq. ft., 1 ply, 65¢; 2 ply, 85¢; 3 ply, $1.10; 4 ply, $1.25.
Deafening Felt, 9, 6 and 4½ sq. ft. to lb., ton.....*$5.50*
Red Rope Roofing, 250 sq. ft. per roll.....*$1.75*

Tarred Paper—

1 ply (roll 400 sq. ft.), ton, $34.00@$38.00
2 ply, roll 108 sq. ft.....*65¢*
3 ply, roll 108 sq. ft.....*88¢*
Slater's Felt (roll 500 sq. ft.).80¢

Sand Paper and Cloth—

Flint and Emery.....*50&10%*
Garnet Paper and Cloth.....25%

Parers—Apple—

Goodell Co.:
Family Bay State.....₱ doz. $15.00
Improved Bay State.....₱ doz. $36.00
New Lightning.....₱ doz. $7.00
Turn Table '98.....₱ doz. $6.00
White Mountain.....₱ doz. $5.00
Bonanza Improved.....each $7.50
Dandy .....each $10.00
Eureka Improved.....each $20.00
New Century.....each $20.00
Ranger .....each $25.00
Livingston Nail Co.:
Daisy .....₱ doz. $4.00
Little Star.....₱ doz. $5.00
Rocking Table.....₱ doz. $6.20
Reading Hardware Co.:
Advance .....₱ doz. $4.00
Baldwin .....₱ doz. $4.00
Reading 72.....₱ doz. $3.25
Reading 78.....₱ doz. $6.25

Potato—

Saratoga .....₱ doz. $7.00
White Mountain.....₱ doz. $6.00

Picks and Mattocks—

(List Jan., 1908.)
List .....*70&10@70&10&10%*
Cronk's Hand'ed Garden Mattock, ₱ doz,, No. 2, $2.60; No. 3, $6.40.

Pinking Irons—
See *Irons, Pinking.*

Pins, Escutcheon—
Brass .....50@50&10%
Iron, list Nov. 11, '85..60@60&10%

Pipe, Cast Iron Soil—
Standard, 2-6 in.....60&5@—%
Extra Heavy, 2-6 in....70&5@—%
Fittings, Standard and Heavy, 70&10@75%

Pipe, Merchant—

	Consumers, Carloads.			
	Steel.		*Iron.*	
	Blk.	*Galv.*	*Blk.*	*Galv.*
	%	%	%	%
⅛ and ¼ in..66	59	61	..	..
⅜ in.....68	54	66	52	
½ in.....70	58	68	56	
¾ to 6 in....74	64	72	62	
7 to 12 in....71	56	69	54	

Pipe, Vitrified Sewer—
Carload lots.
Standard Pipe and Fittings, 3 to 24 in., f.o.b. factory:
First-class 87%
Second-class 90%

Pipe, Stove—

	Per 100 joints,	
Edwards' Nested:	C. L.	L. C. L.
5 in., Standard Blue	$6.25	$7.25
6 in., Standard Blue	6.75	7.75
7 in., Standard Blue	7.75	8.75
5 in., Royal Blue	7.00	8.00
6 in., Royal Blue	7.50	8.50
7 in., Royal Blue	8.50	9.50
Wheeling Corrugating Co.'s Nested:		
5 in., Uniform Color	$6.15	$7.15
6 in., Uniform Color	6.65	7.65
7 in., Uniform Color	7.65	8.65

Planes and Plane Irons—
Wood Planes—
Bench, first qual.....30@30&10%
Bench, second qual...40@40&10%
Molding .....25@25&10%
Chapin-Stephens Co.:
Bench, First Quality.....30%
Bench, Second Quality.....40%
Molding and Miscellaneous.....25%
Toy and German.....30%
Union 60%

Iron Planes -
Chaplin's Iron Planes.....50&10%
Union 60%

Plane Irons—
Wood Bench Plane Irons, list Dec. 12, '06.....25%
Buck Bros.....30%
Chapin-Stephens Co.....25%
Union 50%
L. & I. J. White.....20&5@25%

Planters, Corn, Hand—
Kohler's Eclipse.....₱ doz. $8.00

Plates—
Felloe .....*lb*..3¾@4¢

Pliers and Nippers -
Button Pliers....75&5@75&10&5%
Gas Burners, per doz., 5 in., $1.25 @$1.30; 6 in., $1.45 $1.50.

Gas Pipe..	*7*	*8*	*10*	*12-in.*
	$2.00	*$2.25*	*$2.75*	*$3.50*

Acme Nippers.....50&5%
Cronk & Carrier Mfg. Co.:
American Button.....80%
Improved Button.....75&10%
Cronk's 60%
No. 89 Linemen's.....50%
Stub's Pattern.....45%
Combination and others.....33⅓%
Heller's Farriers' Nippers, Pincers and Tools.....40&5@40&10&5%
P., S. & W. Tinners' Cutting Nippers 40%
Swedish Side, End and Diagonal Cutting Pliers.....50%
Utica Drop Forge & Tool Co.:
Pliers and Nippers, all kinds....40%

Plumbs and Levels—
Chapin-Stephens Co.:
Plumbs and Levels.....30@30&10%
Chapin's Imp. Brass Cor..40@40&10%
Pocket Levels.....30@30&10%
Extension Sights.....30@30&10%
Machinists' Levels.....40@40&10%
Disston's Plumbs and Levels....60&10%
Disston's Pocket Levels.....60&10%
Stanley's Dulex.....35%
Woods' Extension.....33⅓%

Points, Glaziers'—
Bulk and 1-lb. papers....*lb.* 9 ¢
¼-lb. papers.....*lb.* 9½¢
¼-lb. papers.....*lb.* 10 ¢

Police Goods—
Manufacturers' Lists...25@25&5%
Tower's 25%

Polish—Metal, Etc—
Prestoline Liquid, No. 1 (¼ pt.), ₱ doz., $3.00; No. 2 (1 qt.), $9.00...40%
Prestoline Paste.....40%
George William Hoffman:
U. S. Metal Polish Paste, 3 oz. boxes, ₱ doz. 50¢; ₱ gro. $4.50; ½ lb boxes, ₱ doz. $1.25; 1 lb boxes, ₱ doz. $2.25.
U. S. Liquid, 8 oz. cans, ₱ doz., $1.25.
Barkeepers' Friend Metal Polish, ₱ doz., $1.75.

Stove—
Black Eagle Benzine Paste, 5 lb cans, ₱ lb 19¢
Black Eagle, Liquid, ½ pt. cans.. ₱ doz. 75¢
Black Jack Paste, ¾ lb cans, ₱ gr. $9.00
Black Kid Paste, 5 lb can...each, $0.65
Ladd's Black Beauty Liquid, per 100 tins.....$6.75
Joseph Dixon, ₱ gr. $5.75.....10%
Dixon's Plumbago.....₱ lb 8¢
Fireside .....₱ gr. $2.50
Gem, ₱ gr. $4.50.....10%
Japanese .....₱ gr. $3.50
Jet Black.....₱ gr. $3.50
Peerless Iron Enamel, 10 oz. cans.. ₱ doz. $1.50

Window Polish—
Benj. P. Forbes:
Glasbright, No. 2, gal pails, ₱ doz., $24.00; each, $2.50; 1 lb cans, each .....75¢
Glasbright Powder, bbls., ₱ lb..20¢

Poppers, Corn—
1 qt. Square..*doz.$0.80; gro.$8.75*
1 qt. Round..*doz.$0.90; gro.$10.00*
1½ qt. Square.*doz $1.20; gro.$12.00*
2 qt. Square..*doz.$1.50; gro.$15.00*

Post Hole and Tree Augers and Diggers—
See also *Diggers, Post Hole, &c.*

Posts, Steel—
Steel Fence Posts, each, 5 ft., 42¢; 6 ft., 46¢; 6½ ft., 48¢.
Steel Hitching Posts.....each $1.30

Potato Parers—
See *Parers, Potato.*

Pots, Glue—
Enameled 40%
Tinned .....30&10%

Powder—
In Canisters:
Duck, 1 lb.....*each* 45¢
Fine Sporting, 1 lb....*each* 75¢
Rifle, ½-lb.....*each* 45¢
Rifle, 1 lb.....*each* 85¢
In Kegs:
12½-lb. kegs.....$3.50
25-lb. kegs.....$4.50
King's Semi-Smokeless:
Keg (25 lb bulk).....$6.50
Half Keg (12½ lb bulk).....$3.50
Quarter Keg (6¼ lb bulk).....$1.90
Case 24 (1 lb cans bulk).....$8.50
Half case (1 lb cans bulk).....$4.50

King's Smokeless:	Shot Gun.	Rifle.
Keg (25 lb bulk)	$12.00	$15.00
Half Keg (12½ lb bulk)	6.25	7.75
Quarter Keg (6¼ lb bulk)	3.25	4.00
Case 24 (1 lb cans bulk)	14.00	17.00
Half case 12 (1 lb c. bk)	7.25	8.75

Presses—
Fruit and Jelly—
Enterprise Mfg. Co.....20@25%
Seal Presses—
Morrill's No. 1, ₱ doz., $20.00.....50%

Pruning Hooks and Shears
See *Shears.*

Pullers, Nail—
Cyclops 50%
Miller's Falls, No. 3, ₱ doz., $12.00.. 33⅓&10%
Morrill's No. 1, Nail Puller, ₱ doz. $20.00 .....50%
Pearson No. 1, Cyclone Spike Puller, each $30.00.....50%
The Scranton Co. Case Lots:
No. 2B (large).....$5.50
No. 3B (small).....$5.00
Smith & Hemenway Co.:
Diamond B.....70%
Giant 50%
Staple Pullers, Utica and Davison 60%

Pulleys, Single Wheel—

Inch	*1½*	*1¾*	*2*	*3*
Awning or Tackle, doz	*.30*	*.45*	*.60*	*1.05*
Hay Fork, Swivel or Solid Eye, doz., ¼ in., $1.25; 5 in., $1.55				
Inch	2	2¼	2½	
Hot House, doz...	*$1.65*	*.85*	*1.20*	
Inch	*1¼*	*1½*	*1¾*	*2*
Screw, doz....	*$0.16*	*.19*	*.23*	*.30*
Inch	*1¾*	*2*	*2¼*	*2½*
Side, doz.....	*$0.25*	*.40*	*.55*	*.60*
Inch	*1½*	*1¾*	*2*	*2½*

Sash Pulleys—
Common Frame; Square or Round End, per doz., 1¾ and 2 in.....17@20¢
Auger Mortise, no Face Plate, per doz., 1¾ and 2 in....20@21¢
Acme, No. 35..1¾ in., 19¢; 2 in., 21½¢
American Pulley Co.:
Wrought Steel American Plain Axle .....50&10%
Wrought Steel, Eagle.....17@21¢
Top Notch, Electrically Welded, Nos. 3 and 4.....19¢
Fox-All-Steel, Nos. 3 and 7, 2 in.... ₱ doz. 50%
Grand Rapids All Steel Noiseless..50%
Niagara, No. 25, 1¾ in., 19¢; 2 in. .....20½¢
No. 26 Trow..1¾ in., 14½¢; 2 in., 16½¢
Star, No. 26....1¾ in., 19¢; 2 in., 20½¢
Tackle Blocks—See Blocks.

Pumps—
Cistern 60%
Pitcher Spout.....75&5@75&10%
Wood Pumps, Tubing, &c.....50%
Barnes Dbl. Acting (low list)....40&5%
Barnes Pitcher Spout.....75&10%
Contractors' Rubber Diaphragm, No. 2 B. & L. Block Co.....$ 6.00
Daisy Spray Pump.....₱ doz. $6.50
Flint & Walling's Fast Mail Hand (low list).....50%
Flint & Walling's Fast Mail (low list) 50%
Flint & Walling's Tight Top Pitcher .....75&10%
National Specialty Mfg. Co., Measuring, Nos. 2, $6.00; 3, $5.50.....30%
Myers' Pumps (low list).....40&5%
Myers' Power Pumps.....40&5%
Myers' Spray Pumps.....40&5%

Pump Leathers—
Plunger and Valve Leathers—Per gro.:

No.....	*1*	*2*	*3*	*4*	
	$5.00	*6.00*	*7.00*	*8.00*	} 20%

Cup Leathers—Per 100:

Inch....	*2½*	*3*	*3½*	*4*	
	$5.00	*7.00*	*9.00*	*12.00*	} 20%

Punches—
Saddlers' or Drive, good, doz......50&75¢
Spring, single tube, good quality $1.75
Revolving (4 tubes)....*doz.$3.50*
Bemis & Call Co.'s Cast St'l Drive.50%
Morrill's Nos. 1AA, 1A, 1B, 1C, 1D, $15.00.....50%
Hercules, 1 die, each $5.00.....50%
Niagara Hollow Punches.....40%
Niagara Solid Punches.....55&10%
Tinners' Hollow, P., S. & W. Co..40%
Tinners' Solid, P., S. & W. Co., ₱ doz., $1.44.....40%

Rail—Barn Door, &c.—
Sliding Door, Painted Iron, 2½@2¾¢
Sliding Door, Wrought Brass, 1¼ in., lb., 36¢.....30%
Allith Mfg. Co.: Reliable Hanger Track 50%
Cronk's:
Double Braced Steel Rail..₱ ft. 3¼ ¢
O. N. T. Rail.....$3.12
Griffin's:
xxx, ₱ 100 ft., 1 x 3-16 in., $3.25; 1¼ x 3-16 in., $3.75.
Hinged Hanger, ₱ 100 ft., 1 x 3-16 in., $3.50; 1¼ x 3-16 in., $4.00.
Lane's:
Hinged Track, ₱ 100 ft.....$3.45
O. N. T., ₱ 100 ft., 1 in., $3.00; 1¼ in., $3.45; 1½ in., $4.00.
Standard, 1¼ in.....₱ 100 ft. $4.00
Lawrence Bros.:
1 x 3-16 in., ₱ 100 ft., $7.50; 1¼ x 3-16 in., $8.75.....55&7½%
McKinney's:
Hinged Hanger Track, ₱ ft., 11¢. 60&5%
1 x 3-16 Track.....55&7½%
Myers' Stayon Track.....60&5%
Richards Mfg. Co.:
Common, 1 x 3-16 in., $3.00; 1¼ x 3-16, $3.25; 1¼ x 3-16, $3.50.
Special Hinged Hanger Rail..60&10%
Lag Screw Rail, No. 65.....50%
Gauge Trolley Track, ₱ ft., No. 31, 9¢; No. 32, 14¢; No. 33, 20¢.
No. 50.....60&10%
Nos. 61, $3.00; 62, $3.25; 63, $3.50; 64, $4.00; 45, $3.25; 46, $3.50; 49, No. 1, $3.25; 49, No. 2, $3.50.

Rakes—
NOTE.—Many goods are sold at net prices.
Fort Madison Red Head Lawn....$3.25
Fort Madison Blue Head Lawn....$2.75
Cronk's:
Steel Garden: Champion, 75%; Ideal, 80%; Victor.....80&25%
Queen City Lawn, ₱ doz., 20 teeth, $2.85; 24, $3.00.....net
Anticlog Lawn, ₱ doz.....$4.00
Malleable Garden.....70&10%
Ideal Steel Garden, ₱ doz., 12 teeth, $15.00; 14, $16.00; 16, $18.00.....80%
Kohler's:
Lawn Queen, 20-tooth....₱ doz. $3.15
Lawn Queen, 24-tooth....₱ doz. $3.25
Paragon, 20-tooth.....₱ doz. $2.70
Paragon, 24-tooth.....₱ doz. $2.75
Steel Garden, 14-tooth....₱ doz. $2.40
Malleable Garden, 14-tooth, ₱ doz. $2.00@2.25

Rasps, Horse—
Disston's 75%
Heller Bros.'.....70&5@70&10&5%
Liveright Bros.' Gold Medal.70&10@75%
McCaffrey's American Standard..... 6⅓&10&5%
New Nicholson.....70&10@75%
See also Files.

Razors—
Liana Bo-ras-ic.....60%
Fox Razors, ₱ doz., No. 42, $20.00; No. 44, $20.00; No. 82, Platina, $25.00. } 33⅓ 40%
Red Devil.....65%

Reels, Fishing—
Hendryx:
M 6, Q 6, A 6, B 6, M 9¼, M 16, O 16, A 16, B 16, 4008, Rubber, Populo, Nickeled Populo.....20%
Aluminum, German Silv., Bronze.25%
1240 N, 121 N.....20%
3004 N, 06 N, 6 RM, G 9.....25%
4 N, 6 PN, 8 N, 98 PN.....20%
2904 P., 33⅓%; 2904 PN., 33⅓%; 0924 N., 33⅓%; 02084 N., 33⅓%; 002904 PN., 33⅓%; 802 N., 33⅓%; 986 PN, 2994 N, 974 PN.....25%
5009 PN 5009 N.....20%
Competitor, 102 P, 102 PN, 202 P, 202 PN 102 PR, 202 PR.....20%
304 P, 304 PN, 00304 P, 00304 PN, 33⅓%

Registers—*List July 1, 1903.*
Japanned, Electroplated and Bronzed 70%
White Porcelain Enamel..50&10%
Solid Brass or Bronze Metal..40%

Revolvers—
Single Action.....*$5¢@$1.00*
Double Action, except 44 cal.$2.00
Double Action, 44 caliber...*$2.00*
Automatic *$4.00*
Hammerless *$4.50*

Riddles, Hardware Grade
16 in.....*per doz.$2.50@$2.75*
17 in.....*per doz.$2.75@$3.00*
18 in.....*per doz.$3.00@$3.25*

Rings and Ringers—
Bull Rings—

	2	*2½*	*3 inch.*
Steel	*$0.70*	*0.75*	*0.80 doz.*
Copper	*$1.10*	*1.25*	*1.65 doz.*

Hog Rings and Ringers—
Hill's Rings, gro. boxes $4.50@$4 50
Hill's Ringers, Gray Iron, doz., 60@75¢
Hill's Ringers, Malleable Iron, doz.80@95¢
Blair's Rings..*per gro.$5.00@$5.50*
Blair's Ringers...*per doz.75@90¢*

Rivets and Burrs—
Copper .....50@50&5%
Carriage, Coopers', Tinners', &c.:
Black .....70&10%
Metallic Tinned.....70%

Bifurcated and Tubular—
Assorted in Boxes.
Bifurcated, per doz. boxes, pasteboard boxes, 50 count, 23@25¢; Tin boxes, 100 count, 29@32¢.
Tubular, per doz. boxes, 50 count, 29@32¢; 100 count, 51@58¢.

Rollers—
Cronk's Stay, No. 50.....$1.00
Cronk's Brinkerhoff No. 55, $0.60; No. 56, $0.75; No. 60.....$0.75
Lane's Stay.....40%
Richards' Stay:
Handy Adj. and Reversible No. 53.75¢
O. K. Adj. and Reversible No. 58.50¢
Lag Screw, Nos 55 and 57.....50%
Underwriters', Nos. 59, 60.....50%
Favorite, No. 51.....60%

Rope—
Manila, 7-16 in. diam. and larger:
Pure .....*lb., 10¢*
Sisal, 7-16 in. diam. and larger:
Pure .....*lb., 7¢*
Sisal, 7-16 in. diam. and larger: lower grade.....*lb., 6½¢*
Sisal, Hay, Hide and Bale Ropes, Medium and Coarse:
Mixed .....*lb., 6½¢*
Pure .....*lb., 7½¢*
Sisal, Tarred, Medium Lath Yarn:
Mixed .....*lb* ,5¢
Pure .....*lb., 6¢*
Cotton Rope:
Best, ¼-in. and larger...*18@20¢*
Medium, ¼-in. and larger.16@17¢
Common, ¼-in. and larger..*10¢*
In coils, ½¢ advance.
Jute Rope:
Thread, No. 1, ¼-in. and up, lb. .....*6¼¢*
Thread, No. 2, ¼-in. and up, lb. .....*5¾¢*

Wire Rope—
Galvanized .....*37½&2½%*
Plain .....*45&2½%*

Ropes, Hammock—
Covert Mfg. Co.:
Jute, 35%; Sisal.....20%

Rules
Boxwood .....*60@60&10%*
Ivory .....*35&10@35&10&5%*
Chapin-Stephens Co.:
Boxwood 60%
Flexifold 40%
Ivory .....25@25&10%
Miscellaneous .....50@50&10%
Stephens' Combination.....55%
Stationers' .....50@50&10%
Keuffel & Esser Co.:
Folding, Wood.....35&10%
Folding, Steel.....33⅓&10%
Lufkin's Steel.....5%&10%
Lufkin's Lumber.....50&10%
Unson Nut Co.:
Boxwood .....60@60&10%
Ivory .....35&10@35&10&10%

Sash Balances—
See *Balance, Sash.*

Sash Locks—See *Locks, Sash.*

Sash Weights—
See *Weights, Sash.*

Sausage Stuffers or Fillers
See *Stuffers or Fillers, Sausage.*

Saw Frames—
See *Frames, Saw.*

Saw Sets—See *Sets, Saw.*

Saw Tools—See *Tools, Saw.*

Saws—

Atkins':
Circular 45%
Band ..... 50@50&10%
Butcher Saws 50%
Cross Cuts 35%
One-Man Cross Cut 40%
Narrow Cross Cut 50%
Hand, Rip and Panel ..... 35&5%
Miter Box and Compass 40%
Mulay, Mill and Drag 45%
Wood Saws ..... 40&10%
Chapin-Stephens Co.:
Turning Saws and Frames ..... 30@30&10%
Diamond Saw & Stamping Works:
Sterling Kitchen Saws ..... 30&10&10%
Disston's:
Circular, Solid and Ins'ted Tooth 50%
Band, 2 to 18 in. wide 60
Band, ¼ to 1¾ 60%
Crosscuts 45%
Narrow Crosscuts 50%
Mulay, Mill and Drag 50
Framed Woodsaws 25%
Woodsaw Blades 25%
Woodsaw Rods, Tinned 15%
Hand Saws, Nos. 12, 99, 9, 16, d100, D8, 120, 76, 77, 8 ..... 25%
Hand Saws, Nos. 7, 107, 107½, 3, 1, 0, 00, Combination 30%
Compass, Key Hole, &c 25%
Butcher Saws and Blades 30%
C. E. Jennings & Co.'s:
Back Saws 16⅔%
Butcher Saws ..... 25&7½%
Compass and Key Hole Saws, 33⅓&7½%
Framed Wood Saws ..... 25&7½%
Hand Saws 12½%
Wood Saw Blades ..... 33⅓&7½%
Millers Falls:
Butcher Saws ..... 15&10%
Star Saw Blades ..... 15&10%
Massachusetts Saw Works:
Victor Kitchen Saws ..... 40&10&50%
Butcher Saws Blades ..... 35@40
Peace & Richardson's Hand Saws 30%
Simonds':
Circular Saws 45%
Crescent Ground Cross Cut Saws 30
One-Man Cross Cuts ..... 40&10%
Gang Mill, Mulay and Drag Saws 45%
Band Saws 50%
Back Saws ..... 25@25&7½%
Butcher Saws ..... 35@35&7½%
Hand Saws ..... 25@25&7½%
Hand Saws, Bay State Brand 45%
Compass, Key Hole, &c ..... 25@25&7½%
Wood Saws ..... 40&7½%
Wheeler, Madden & Clemson Mfg. Co.'s Cross Cut Saws 50%

Hack Saw Blades and Frames—

Atkins' Hack Saw Blades A A A 25%
Disston's:
Concave Blades 25%
Keystone Blades 5
Hack Saw Frames 30%
Simonds File Co 35%
C. E. Jennings & Co.'s:
Hack Saw Frames, Nos. 175, 180 ..... 40&7½%
Hack Saws, Nos. 175, 180, complete ..... 40&7½%
Goodell's Hack Saw Blades ..... 40&10%
Griffin's Hack Saw Frames ..... 35&5&10%
Griffin's Hack Saw Blades ..... 35&5&10%
Star Hack Saws and Blades ..... 15&10%
Sterling Hack Saw Blades ..... 30&10&5%
Sterling Hack Saw Frames ..... 30&10&10%
Sterling Power Hack Saw Machines, each, No. 1, $25.00; No. 2, $30.00 ..... 10%
Victor Hack Saw Blades 20%
Victor Hack Saw Frames 40%
Whitaker Mfg. Co.:
National Hand Blades 40%
National Hand Frames ..... 30&5%
National Power Blades ..... 30&10%

Scroll—

Barnes, No. 7, $15 ..... 25%
Barnes' Scroll Saw Blades 40%
Barnes' Velocipede Power Scroll Saw, without boring attachment, $18; with boring attachment, $20 ..... 20%
Lester, complete, $10.00 ..... 15&10%
Rogers, complete, $3.50 and $4.00 ..... 15&10%

Scales—

Union Platform, Plain ..... $2.10@2.20
Union Platform, Stpd ..... $2.20@2.30
Chatillon's:
Eureka 25%
Favorite 40%
Grocers' Trip Scales 50%
The Standard Portables 40%
The Standard R. R. and Wagon ..... 50&10%

Scrapers—

Box, 1 Handle ..... doz. $1.85@2.10
Box, 2 Handle ..... doz. $2.35@2.50
Ship ... Light, $2.00; Heavy, $4.50
Chapin-Stephens Co., Box ..... 30@30&10%
Richards Mfg. Co., Foot 60%

Screws—Bench and Hand

Bench, Iron, doz., 1 in., $2.50@2.75; 1¼, $3.00@3.25; 1¼ ... $3.50@3.75
Bench, Wood ..... 20@20&10%
Hand, Wood ..... 70&10@70&10&10%
Chapin-Stephens Co., Hand ..... 70@70&10&2½%

Coach, Lag and Hand Rail—

Lag, Cone Point ... 80&5@80&10%
Coach, Gimlet Point .. 80@80&5%
Hand Rail ..... 70&10@75%

Jack Screws—

Standard List ..... 70&10@75%
Millers Falls ..... 50&10&10%
Swett Iron Works ..... 70@75%

Machine—

Cut Tread, Iron, Brass or Bronze:
Flat Head or Round Head, 50@50&10%
Fillister Head ..... 40@40&10%
Rolled Thread, F. H. or R. H., Iron ..... 75&10%
F. H. or R. H., Brass, Nos. 8 to 14 ..... 65&10%

Set and Cap—

Set (Iron) ..... 75&10&7½%
Set (Steel), net advance over Iron 25%
Sq. Hd. Cap ..... 70&10&7½%
Hex. Hd. Cap ..... 70&10&7½%
Rd. Hd. Cap ..... 50&7½%
Fillister Hd. Cap ..... 60&7½%

Wood—

List July 23, 1903.
Flat Head, Iron ..... 87½&5@.. %
Round Head, Iron ..... 85&5@.. %
Flat Head, Brass ..... 80&5@.. %
Round Head, Brass ..... 77½&5@.. %
Flat Head, Bronze ..... 75&5@.. %
Round Head, Bronze ..... 72½&5@.. %
Drive Screws ..... 87½&5@.. %

Scroll Saws—

See *Saws, Scroll.*

Scythes—

Per doz.
Grass, No. 1, Plain $7.00
Clipper, Bronzed Webb $7.25
No. 3 Clipper, Pol'd Webb ... $7.50
No. 6 Clipper and Solid Steel $7.75
Bush, Weed and Bramble, Nos. 11, 12 and 13 ..... $7.25
Grain, No. 1 ..... $9.00@9.50
Bronzed Webb, No. 1 ... $9.25@9.75
Nos. 3 and 4 Clipper, Grain, $9.50@10.00
Solid Steel, No. 6 .... $10.00@10.50

Seeders, Raisin—

Enterprise ..... 25@30%

Sets— Awl and Tool—

Fray's Adj. Tool Handles, Nos. 1, $12; 2, $16; 3, $12 ..... 50%
Millers Falls Adj. Tool Handles, No. 1, $12; No. 4, $12; No. 5, $18 .. 20&10%

Garden Tool Sets—

Ft. Madison Three Plows, Hoe, Rake and Shovel ..... ℔ doz. sets $9.00

Sets, Nail—

Octagon ..... gro. $3.50@3.75
Buck Bros. 27½%
Cannon's Diamond Point, ℔ gro. $12, 40&10%
Mayhew's ..... ℔ gro. $9.00
Snell's Corrugated, Cup Pt. ..... 40&10%
Snell's Knurled, Cup Pt. ..... 40&10%
Victor Knurled, Cup Pt. ... ℔ gro. $7.50

Rivet—

Regular list ..... 75@75&10%

Saw—

Atkin's:
Criterion 40%
Adjustable 40%
Disston's Star, Monarch and Triumph 30%
Morrill's No. 1 ..... $15.00
Nos. 3 and 4, Cross Cut $23.60
No. 5, Mill $30.00
Nos. 10, 11, 95 ..... $15.60
No. 1 Old Style $10.00
Special $16.25
Giant Royal Cross Cut ..... ℔ doz. $8.00
Royal, Hand ..... ℔ doz. $4.50
Taintor Positive ..... ℔ doz. $6.75

Shaving—

Fox Shaving Sets, No. 30 ..... ℔ doz., net, $24.00
Smith & Hemenway Co.'s 75%

Sharpeners, Knife—

Pike Mfg. Co.:
Fast Cut Pocket Knife Hones, ℔ doz. $1.50
Mounted Kitchen Sand Stone, ℔ doz. $1.50
Natural Grit Carving Knife Hones, ℔ doz. $3.00
Quick Cut Emery Carving Knife Hones, ℔ doz. $1.50
Quick Edge Pocket Knife Hones, ℔ doz. $2.50
} 50%

Skate—

Smith & Hemenway Co., Eureka .. 50%

Shaves, Spoke—

Iron ..... doz. $1.25
Wood ..... doz. $2.00
Bailey's (Stanley R. & L. Co.) 45%
Chapin-Stephens Co. ..... 30@30&10%
Goodell's, ℔ doz. $9.00 ..... 15&10%

Shears—

	7	8	9 in.
Cast Iron			
Best	$16.00	18.00	20.00 gro.
Good	$13.00	15.00	17.00 gro.
Cheap	$5.00	6.00	7.00 gro.

Straight Trimmers, &c.:
Best quality Jap .... 70@70&10%
Best quality Nickel .. 60@60&10%
Tailors' Shears ..... 40@40&10%
Acme Cast Shears ..... 40@40&5%
Heinisch's Tailor's Shears 10%
National Cutlery Co.'s Nickel Plated, 60&10%; Japan Handles ..... 70&10%
Wilkinson Shear & Cutlery Co.:
Sheep, 1900 list ..... 30&10&5%
Grass ..... 50&10%
Horse or Mule ..... 50&10%
J. Wiss & Sons Co.:
Best Quality Jap'd ..... 60&10%
Best Quality Nickeled ..... 50&10%
Tailors' 25%

Tinners' Snips—

Steel Blades ..... 20&5@20&10%
Steel Laid Blades ..... 40&10@50%
Forged Handles, Steel Blades, Berlin 50%
Heinisch's Snips 40%
Jennings & Griffin Mfg. Co.'s 6½ to 10 in. ..... 33⅓&7½%
National Cutlery Co.'s Forged Steel 50%
Niagara Snips 40%
P., S. & W. Forged Handles, 2½": W. R. W. ..... 40&10%
J. Wiss & Sons Co.:
Wiss Forged Steel 25%

Pruning Shears—

Cronk's Hand Shears 33⅓%
Cronk's Wood Handle Shears 33⅓%
Disston's Combined Pruning Hook and Saw, ℔ doz. $18.00 ..... 25%
Disston's Pruning Hook only, ℔ doz., $12.00 ..... 25%
John T. Henry Mfg. Co.:
Pruning Shears, all grades 40%
P., S. & W. Co. ..... 40&10%
Columbian Cutlery Co.:
Hedge, Wilcut Brand ..... 60&10%
Lawn and Border, Wilcut Brand, 60&10%

Sheaves— Sliding Door—

Reading 40%
R. & E. list 15%

Sliding Shutter—

Reading list 40%
R. & E. list 10%

Shells—Shells, Empty—

Brass Shells, Empty:
Climax, 10 and 12 gauge ..... 65&10%
Club, Rival, 65&5%; First Quality, 60&5%
Paper Shells, Empty:
New Rapid, 10, 12, 16 and 20 gauge, 25&10%
Climax, 10 and 12 gauge; Acme, 10, 12, 16 and 20 gauge; Ideal, 10, 12, 16 and 20 gauge; Leader grade, 25&5%
Union League, 12 and 12 gauge; Rival Grade 25%
New Climax, Defiance, 10, 12, 14, 16 and 20 gauge; Climax, 14, 16 and 20 gauge ..... 20&5%
Challenge, Monarch, 10, 12, 16 and 20 gauge; League, Union, 14, 16 and 20 gauge; Repeater Grade .. 20%

Shells, Loaded—

Loaded with Black Powder .. 40%
Loaded with Smokeless Powder, medium grade ..... 40&5%
Loaded with Smokeless Powder, high grade ..... 40&10&10%
Union Metallic Cartridge Co.:
New Club, Black Powders 40%
Nitro Club, Smokeless Powders ..... 40&5%
Arrow, Smokeless Powders ..... 40&10&10%
Winchester:
Smokeless Repeater Grade ..... 40&5%
Smokeless Leader Grade ... 40&10&10%
Black Powder 40%

Shingles, Metal— Per Sq.

Edwards Mfg. Co.:

	Painted.	Galv.
14 x 20	$4.25	$6.00
10 x 14	4.50	6.25
7 x 10	4.75	6.50

Wheeling Corrugating Co.:

Dixie, 14 x 20 in.	$4.25	$5.50
Dixie, 10 x 14 in.	4.50	6.00
Dixie, 7 x 10 in.	5.00	6.75

Shoes, Horse, Mule, &c.—

F.o.b. Pittsburgh:
Iron ..... per keg. $4.10
Steel ..... per keg. $3.85
Burden's, all sizes ..... ℔ keg $3.90

Shot—

25-lb. bag.
Drop, up to B $1.80
Drop, B and larger 2.05
Buck 2.05
Chilled 2.05
Dust 2.30

Shovels and Spades—

Association List, Nov. 15, 1902 ..... 40%
Avery Stamping Co. 40%

Snow Shovels—

Long Handle ..... $3.25@$3.50
Wood and Mall, D Handle, $3.75@$4.00

Sieves and Sifters—

Hunter's Imitation, gro. $9.50
Hunter's Genuine, per gro. .. $3.00

Sifters, Ash—

Acme Ball Bearing Sales Co., Acme Automatic Ash Sifter, each, $3.25; ℔ doz. $39.00

Sieves, Seamless Metallic

Mesh	14	16	18	20
	—Per dozen.—			
Iron Wire	*$1.05*	*1.05*	*1.10*	*1.20*
Tinned Wire	*$1.15*	*1.15*	*1.20*	*1.30*

Sieves, Wooden Rim—

Nested, 10, 11 and 12 Inch.
Mesh 18, Nested ... doz. $0.90@0.95
Mesh 20, Nested ... doz. $1.00@1.05
Mesh 24, Nested ... doz. $1.30@1.40

Sinks, Cast Iron—

Painted, Standard list:
12 x 12 to 22 x 36 in 60%
20 x 24 to 24 x 50 in 50%
24 x 60 to 24 x 120 in 30%
Barnes' low list:
Up to and including 20 x 36 in. .. 50&5%
20 x 40 to 24 x 50 in. 45%

NOTE.—There is not entire uniformity in lists used by jobbers.

Skeins, Wagon—

Cast Iron ..... 70@75&10%
Steel ..... 40@45%

Slates, School—

Factory Shipments.
"D" Slates ..... 50@50&10%
Eureka, Unexcelled Noiseless .. 60&7 tens.
Victor A, Noiseless .60&5 tens @5%

Slaw Cutters—See *Cutters.*

Snaps, Harness—

German ..... 40@40&10%
Covert Mfg. Co.:
Derby, 25%; Yankee, 30&2%; Yankee Roller, 30&2%
High Grade, 40%; Trojan 40%
Jockey 25%

Snaths—

Scythe 60%

Snips, Tinners—See *Shears.*

Spoons and Forks—

Silver Plated—

Good Quality ..... 50&10@60&5%
Cheap ..... 60@60&10%
International Silver Co:
1847 Rogers Bros., 40&10%; Rogers & Hamilton ..... 50&10%
Rogers & Bro., William Rogers' Eagle Brand ..... 50&10%
Anchor, Rogers Brand 60%
Wm. Rogers & Son ..... 60&10%

Miscellaneous

German Silver ..... 60@60&5%

Tinned Iron—

Teas ..... per gro. 50@55¢
Tables ..... per gro. $0.90@$1.00

Springs— Door—

Bardsley's Spring and Check 40%
Chicago (Coil) ..... 40&10%
Gem (Coil) 20%
Pullman Door and Gate 10%
Reliance (Coil) ..... 40&10%
Star (Coil) 30%
Torrey's Rod, 39 in. ..... ℔ doz. $1.10

Carriage, Wagon, &c.—

1¼ in. and Wider: Per 100 lb.
Black ..... $4.75@$5.00
Half Bright ..... $4.75@$5.00
Bright ..... $5.25@$5.50
Painted Seat Springs:
1½ x 2 x 26 .... per pair. 45@47¢
1½ x 3 x 28 .... per pair. 68@71¢

Sprinklers, Lawn—

American Foundry & Mfg. Co.:
Cactus, 65%; Japanese, 70%; National, ℔ doz. $12.00
Enterprise ..... 25@30%
Philadelphia No. 1, ℔ doz, $12; No. 2, $15; No. 3, $20 ..... 30%

Squares—

Nickel plated .. } List Jan. 5, 1900.
Steel and Iron .. } 80@80&5%
Rosewood Hdl. Try Square and T-Bevels ..... 60&10&10@70%
Iron Hdl. Try Squares and T-Bevels ..... 40&10@40&10&10%
Disston's Try Squares and Bevels, Rosewood Handle, 60 & 10%; Iron Stock and Bevel 15%

Squeezers, Lemon

Wood, Porcelain Lined:
Cheap ..... doz. $1.00
Good Grade ..... doz. $1.25
Tinned Iron ..... doz. $0.75@1.00
Iron, Porcelain Lined ... doz. $1.75

Staples—

Barbed Blind ..... 85&5@85&10%
Electricians' ..... 80&10&10@85%
Fence Staples, Polished, $2.05:
Galvanized $2.35
Poultry Netting Staples ..... per lb. 3¼@3½¢

Steels, Butchers'—

Dick's 30%
Foster Bros. 30%

Steelyards— .... 30@30&10%

Stocks and Dies—

Blacksmiths' ..... 50@50&10%
Curtis Rev'ble Ratchet Die Stock .. 25%
Derby Screw Plates 25%
Green River 25%
Lightning Screw Plate 25%
Little Giant 25%
Reece's New Screw Plate 25%

Stoners, Cherry—

Enterprise ..... 25@30%

Stones—Oil, &c.

Pike Mfg. Co., 1907 list:	℔	lb
Arkansas St. No. 1, 3 to 5½ in.	$2.86	
Arkansas St. No. 1, 5½ to 8 in.	$3.50	
Arkansas Slips No. 1	$1.00	
Lily White Washita, 4 to 8 in.	60¢	
Rosy Red Washita, 4 to 8 in.	60¢	
Washita St., Extra, 4 to 8 in.	50¢	
Washita St., No. 1, 4 to 8 in.	40¢	
Washita St., No. 2, 4 to 8 in.	25¢	
Lily White Slips	90¢	
Rosy Red Slips	90¢	
Washita Slips, Extra	80¢	
Washita Slips, No. 1	70¢	
Washita Slips, No. 2	40¢	
India Oil Stones (entire list)	33⅓%	
Quickcut Emery and Corundum Oil Stone, Double Grit	40%	
Quickcut Emery and Corundum Axe Stone, Double Grit	33⅓%	
Quickcut Emery Rubbing Bricks	40%	
Hindostan No. 1, R'g'lar	℔	8¢
Hindostan No. 1, Small	℔	10¢
Axe Stones (all kinds)		
Turkey Oil Stones, Extra, 5 to 8 in.	℔	80¢
Queer Creek Stones, 4 to 8 in.		20¢
Queer Creek Slips		40¢
Sand Stone		6¢

33⅓%

33⅓%

Scythe Stones—

Pike Mfg. Co., 1901 list:
Black Diamond S. S. ℔ gro. $12.00
Lamoille S. S. ℔ gro. $11.00
White Mountain S. S. ℔ gro. $9.50
Green Mountain S. S. ℔ gro. $7.00
Extra Indian Pond S. S. ℔ gro. $8.00
No. 1 Indian Pond S. S. ℔ gro. $7.50
No. 2 Indian Pond S. S. ℔ gro. $5.00
Leader Red End S. S. ℔ gro. $5.00
Quick Cut Emery.... ℔ gro. $10.00
Pure Corundum..... ℔ gro. $18.00
Crescent $7.00
Emery Scythe Rifles, 2 Coat. $8.80
Emery Scythe Rifles, 3 Coat. $11.00
Emery Scythe Rifles, 4 Coat. $13.20
Balance of 1904 list 33⅓%
Electro (Artificial), ℔ gro., $12.00 ..... 33⅓%
Lightning (Artificial), ℔ gro., $8.00 ..... 33⅓%

Stoppers, Bottle—

Victor Bottle Stoppers..... ℔ gro, $9.00

Stops— Bench—

Millers Falls..... 15&10%
Morrill's, ℔ doz., No. 1, $10.00.... 50%
Morrill's, No. 2, $12.50..... 50%

Door—

Chapin-Stephens Co..... 50@50&10%

Plane—

Chapin-Stevens Co..... 20%

Straps— Box—

Acme Embossed, case lots..20&10&10%
Cary's Universal, case lots...20&10&10%

Stretchers, Carpet—

Cast Iron, Steel Points..doz. 55¢
All Steel Socket...doz. $2.00@2.25
Excelsior Stretcher and Tack Hammer Combined, ℔ doz., $6.00.... 20%

Stuffers, Sausage—

Enterprise Mfg. Co..... 25@25&7½%
National Specialty Co., list Jan. 1, 1902 ..... 30&5%
P., S. & W. Co..... 40&10&5%

Sweepers, Carpet—

Bissell Carpet Sweeper Co.: ℔ doz.
Superba, Crotch Mahogany.....$36.00
Triumph, Fancy Veneers.....$33.00
Parlor Queen, Fig. Rosewood..$30.00
Elite, Hungarian Ash.....$29.00
Am. Queen, Fig. Mahogany....$27.00
Ideal, Bird's-Eye Maple.....$25.00
Grand Rapids, Nickel, $24.00; Japan $22.00
Standard, Nickel, $22.00; Japan.$20.00
Crown Jewel, Nickel, $21.00; Jap.$19.00
Crystal, Glass Top.....$36.00
Grand, 17 in. wide.....$36.00
Parlor Grand.....$18.00
Club, 24 in. wide.....$54.00
Hall 28 in. wide.....$60.00

NOTE.—Rebates: 50c per dozen on three dozen lots; $1 per dozen on five-dozen lots; $2 per dozen on ten-dozen lots; $2.50 per dozen on twenty-five dozen lots.

Tacks, Finishing Nails, &c.

American Carpet Tacks...90&40%
American Cut Tacks.....90&40%
Swedes' Cut Tacks.....90&40%
Swedes' Upholsterers'....90&50%
Gimp Tacks.....90&50%
Lace Tacks.....90&50%
Trimmers' Tacks.....90&40%
Looking Glass Tacks.....65%
Bill Posters' and Railroad Tacks, 90&50&10%
Hungarian Nails.....80&20%
Finishing Nails.....70%
Trunk and Clout Nails...80&10%

NOTE.—The above prices are for Straight Weights.

Miscellaneous—

Double Pointed Tacks, 90&6 tens@—%
Se also Nails, Wire.

Tanks, Oil and Gasoline—

Wilson & Friend Co.:

Gal.	Gasoline	Oil
30	$2.75	$3.00
60	$3.50	$4.00
110	$5.00	$5.75

Tapes, Measuring—

American Asses' Skin....50@—%
Patent Leather.....25@30&5%
Steel .....33⅓&5%
Chesterman's .....25@25&5%
Keuffel & Esser Co.:
Favorite, Ass Skin.....40&10@50%
Favorite, Duck and Leather..... 25&5@25&10%
Metallic and Steel, lower list, 35@35&5%; Pocket, 35@35&5%.
Lufkins:
Asses' Skin.....40&10@50%
Metallic .....30@30&5%
Patent Bend, Leather...25&5@25&10%
Pocket .....40@40&5%
Steel .....33⅓@35%
Wiebusch & Hilger:
Chesterman's Metallic, No. 34L, etc. 25%
Chesterman's Steel, No. 1038L, etc. 35%

Teeth, Harrow—

Steel Harrow Teeth, plain or headed, ¾-inch and larger, per 100 lb.....$2.55@$2.80

Thermometers—

Tin Case, Cabinet, Flange, Dairy, &c.....30@35%

Ties, Bale—Steel Wire—

Single Loop.....82½&10%
Monitor, Cross Head, &c.70&2½%

Tinners' Shears, &c.—

See *Shears, Tinners', &c.*

Tinware—

Stamped, Japanned and Pieced, sold very generally at net prices.

Tire Benders, Upsetters, &c.

See *Benders and Upsetters, Tire.*

Tools—Coopers'—

L. & I. J. White.....20@20&5%

Haying—

Myers' Hay Tools..... 45%

Ice Tools—

Gifford-Wood Co..... 15%

Miniature—

Smith & Hemenway Co.'s, Davidson, ℔ doz., Nickel Plated, $1.50; Gold Plated.....$2.00

Saw—

Atkins' Cross Cut Saw Tools....35&5%
Simond's Improved.....33⅓%
Simonds' Crescent..... 25%

Ship—

L. & I. J. White..... 25%

Transom Lifters—

See *Lifters, Transom.*

Traps—Fly—

Balloon, Globe or Acme, doz., $1.15@$1.25; gro.....$11.50@12.00
Harper, Champion or Paragon, doz., $1.25@1.40; gro.$13.00@13.50

Game—

Imitation Oneida.....75@10%
Newhouse .....45@45&5%
Hawley & Norton..... 65%
Victor .....75@75&10%
Oneida Community Jump..... 50%
Hector .....75@75&10%

Mouse and Rat—

Mouse, Wood, Choker, doz. holes, 12¢
Mouse, Round or Square Wire, doz. 85@90¢
Marty French Rat and Mouse Traps (Genuine).
No. 1, Rat, ℔ doz, $13.25..$11.50 doz.
No. 3, Rat, ℔ doz., $6.50...$5.75 doz.
No. 3½, Rat, ℔ doz., $5.25. $4.70 doz.
No. 4, Mouse, ℔ doz., $3.85. $3.00 doz.
No. 5, Mouse, ℔ doz., $3.00. $2.25 doz.
Oneida Community:
Out o' Sight, Mouse ℔ doz.....$0.60
Out o' Sight, Rat, ℔ doz.....1.25
Easy Set, Mouse, ℔ doz..... .35
Easy Set, Rat, ℔ doz..... 1.00
Wood Choker, Rat, ℔ doz. holes. .12
Premier Tin Choker, 5 hole, ℔ doz. traps..... .75

Trowels—

Disston Brick and Pointing..... 25%
Disston Plastering..... 20%
Disston "Standard Brand" and Garden Trowels..... 30%
Kohler's Steel Garden Trowels, ℔ gro., 5 in., $4.80; 6 in., $6.00.
Never-Break Steel Garden Trowels.. ℔ gro. $6.00
Woodrough & McParlin, Plastering. 25%

Trucks, Warehouse, &c.—

B. & L. Block Co.:
New York Pattern.....50&10%
Western Pattern.....60&10%
Handy Trucks..... ℔ doz. $16.00
Grocery ..... ℔ doz $15.00
McKinney Trucks.....each, net $10.00
Model Stove Trucks..... ℔ doz $18.50

Tubs, Wash—

M'f'gr's list, price per gross.

No. 0	1	2	3
$67	$79	$89	$99

Galvanized.....10¢&7½&5%

Twine, Miscellaneous—

Flax Twine:
No. 9, ¼ and ½-lb. Balls..21@23¢
No. 12, ¼ and ½-lb. Balls..19@21¢
No. 18, ¼ and ½-lb. Balls..16@18¢
No. 24, ¼ and ½ -lb. Balls. 15½@17½¢
No. 36, ¼ and ½-lb. Balls..15@17¢
Chalk Line, Cotton ½-lb. Balls .....24@29¢
Cotton Mops, 6, 9, 12 and 15 lb. to doz.....8½@19¢
Cotton Wrapping, 5 Balls to lb.. according to quality..13½@19¢
American 2-Ply Hemp, ¼ and ½-lb. Balls.....12½@15¢
American 3-Ply Hemp, 1-lb. Balls .....13½@16¢
India 2-Ply Hemp, ¼ and ½-lb. Balls (Spring Twine)...7½@9¢
India 3-Ply Hemp, 1-lb. Balls 7½@9¢
India 2-Ply Hemp, 1¼-lb Balls, 7@8½¢
2, 3, 4 and 5-Ply Jute, 1¼-lb. Balls .....9@11¢
Mason Line, Linen, ¼-lb. Bls.47¢
No. 26½ Mattress, ¼ and ¼ lb. Balls, according to quality, 30@60¢
Wool, 3 to 6 ply....B 6¢; A 7½¢

Vises—

Solid Box.....50&5@50&10&5%

Parallel—

Athol Machine Co.:
Simpson's Adjustable..... 40%
Standard 40%
Amateur 25%
Columbian Hdw. Co..... 40%
Fisher & Norris Double Screw, net, each, Nos. 2, $10.50; 3, $16.00; 4, $20.50; 5, $27.00.
Fulton Mach. & Vise Co.:
Reed, Swivel..... 25%
Star, Solid Jaw..... 40%
Hollands':
Machinists' .....40@40&5%
Keystone .....65&5@70%
Lewis Tool Co.:
Adjustable Jaw..... 30%
Monarch, 50%; Solid Jaw..... 50%
Massey Vise Co.:
Clincher 40%
Perfect, 15%; Lightning Grip..... 15%
Merrill's 20%
Millers Falls Oval Slide Pattern.60&10%
Parker's:
Victor, 20@25%; Regulars....20@25%
Vulcan's .....40@45%
Combination Pipe.....55@60%
Prentiss .....20@25%
Rock Island..... 25%
Snediker's X. L..... 33⅓%
Stephens' 33⅓%

Saw Filers

Disston's D 3 Clamp and Guide, ℔ doz., $24.00, 30%; Clamps..... 30%
Perfection Saw Clamps, ℔ doz....$4.50
Reading 60%

Wood Workers—

Fulton Mach. & Vise Co.:
Reed 25%
Star 40%
Massey Vise Co.:
Lightning Grip, 15%; Perfect....15%
Wyman & Gordon's Quick Action, 6 in., $6.00; 9 in., $7.00; 14 in., $8.00.

Miscellaneous—

Holland's Combination Pipe..60@60&5%
Massey's Quick Action Pipe..... 40%
Parker's Combination Pipe:
87 Series, 60%; 187 Series, 60&5%; No. 870, 40%.
Rock Island Pipe..... 25%

Wads—*Price per M.*

B. E., 11 up.....60¢
B. E., 9 and 10.....70¢
B. E., 8.....80¢
B. E., 7.....80¢
P. E., 11 up.....$1.00
P. E., 9 and 10..... 1.25
P. E., 8..... 1.50
P. E., 7..... 1.50
Ely's B. E., 11 and larger..$1.70@1.75
Ely's P. E., 12 to 20....$3.00@3.25

Dis. 15%

Ware, Hollow—Cast Iron, Hollow—

Stove Hollow Ware:
Enameled .....45&10%
Ground .....50&5%
Plain or Unground.....60%
Country Hollow Ware, per 100 lbs .....$2.75@$3.00
White Enameled Ware:
Maslin Kettles.....65&10%
Covered Wares:
Tinned and Turned.....35&10%
Enameled .....45&10%
See also *Pots, Glue.*

Enameled—

Agate Nickel Steel Ware.....33⅓%
Iron Clad Ware.....70&10%
Lava and Volcanic, Enameled..40&10%

Tea Kettles—

Galvanized Tea Kettles:

Inch	6	7	8	9
Each	45¢	50¢	55¢	65¢

Steel Hollow Ware—

Avery Spiders and Griddles..65@65&5%
Avery Kettles..... 60%
Porcelained .....50&5@50&10%
Never Break Spiders and Griddles.. 65&5%
Never Break Kettles..... 60%
Solid Steel Spiders and Griddles.65&5%
Solid Steel Kettles..... 60%

Warmers, Foot—

Pike Mfg. Co., Soapstone....40@40&10%

Washboards—

Solid Zinc: ℔ doz.
Crescent, family size, bent frame.$4.05
Red Star, family size, stationary protector $4.05
Double Zinc Surface:
Saginaw Globe, family size, stationary protector.....$3.55
Cable Cross, family size, stationary protector.....$3.60
Single Zinc Surface:
Naiad, family size, open back, perforated $3.00
Single Saginaw Globe.....$2.85
Brass Surface:
Brass King, Single Surface, open back $4.05
Nickel Plate Surface:
No. 1001 Nickel Plate, Single Surface $3.60
Glass Surface:
Glass King, Single Surface, open back $3.95
Enamel Surface:
Enamel King, Single Surface, ventilated back.....$3.95

Washers—Leather, Axle—

Solid .....90@90&10%
Patent .....90@90&5%
Coil: ¾ 9¢; 1 10¢; 1¼ 11¢; 1¼ inch, 14¢ per box.

Iron or Steel—

Size bolt.... 5-16 ⅜ ½ ⅝ ¾
Washers....$4.65 3.75 2.45 2.25 2.05
The above prices are based on $6.75 off list.
In lots less than one keg add ½¢ per lb.; 5-lb. boxes add ½¢ to list.

Cast Washers—

Over ½-inch, barrel lots, per lb. 1½@1¾¢

Wedges—

Oil Finish.....lb., 2¼@2¾¢

Weights—Hitching—

Covert Mfg. Co..... 30&2%

Sash—

Per net ton, f.o.b. factory:
Eastern District.....$21.00@—
Western and Central Districts .....$19.00@$20.00

Wheels, Well—

8-in., $2.00; 10-in., $2.30; 12-in., $3.00; 14-in., $4.45.

Wire and Wire Goods—

Bright and Annealed:
6 to 9.....72&10&7½%
10 to 18.....72½&10&10%
19 to 26.....75&10&10&2½%
27 to 36.....77½&10&7½%
Galvanized:
6 to 9.....72½&10%
10 to 14.....72½&10&5%
15 to 16.....72½&10&5%
17 to 18.....72½%
19 to 26.....70&5&2½%
27 to 36.....65&10&10%
Coppered:
6 to 9.....65&10&10%
10 to 14.....70&10&5%
15 to 18.....65&10&10&10%
19 to 26.....70&5&2½%
27 to 36.....72½&10&2½%
Tinned:
6 to 18.....67&10&10%
Brass .....15½¢ lb., base
Copper .....15¢ lb., base
Cast Steel Wire.....50%

Spooled Wire—

Annealed and Tinned.....75%
Brass and Copper.....70%
Retailers' Assortments, per box. $2.00@$2.25
Wire Clothes Line, See Lines.
Wire Picture Cord, see Cord.

Bright Wire Goods—

Steel Wire Goods..90[illegible]½@—%
Brass Wire Goods....90@90&10%
Brass Cup and Shoulder Hooks, 85&10%

Wire Cloth and Netting—

Galvanized Poultry Netting, 80&2½@80&7½%
Painted Screen Cloth, 100 ft..$1.35
Standard Galv. Hardware Grade: 100 ft. rolls, 2½ to 48 in. wide, Per 100 sq. ft.
Nos. 2, 2½ and 3 Mesh....$2.75
Nos. 4 and 5 Mesh.....$3.00
No. 6 Mesh.....$3.25
Nos. 7 and 8 Mesh.....$3.75

Wire, Barb—See *Trade Report*

Wrenches—

Agricultural .....80&10&10%
Alligator or Crocodile..70&10@75%
Baxter Pattern S Wrenches... 70&5@70&10%
Drop Forged S.....45@45&5%
Acme .....60&10%
Alligator Pattern, 70%; Bull Dog..70%
Bemis & Call's:
Adjustable S, 40%; Adjustable S Pipe, 40%; Briggs Pattern, 40%; Combination Bright, 40%.
Steel Handle Nut..... 50%
Combination Black.....40&5%
Merrick Pattern..... 50%
Boardman's 40%
Coes' Genuine Knife Hdl...40&10&5&5%
Coes' Genuine Steel Hdl...40&10&5&5%
Coes' Genuine Key Model..40&10&5&5%
Coes' Genuine Hammer Handle..... 40&10&5&5%
Coes' "Mechanics'"...40&10&10&5&5%
Donohue's Engineer.....40&10%
Eagle 70%
Gem Pocket..... 30%
Hercules 70%
W. & B. Machinist:
Case lots..... 50&5%
Less than case lots..... 50%
W. & B. Railroad Special:
Case lots..... 50%
Less than case lots.....40&10&5%
Solid Handles, P., S. & W..50&10% full cases.....50&10&5%
Standard Nipple Mfg. Co.:
Duplex Chain.....50@50&10%
Stillson 65%
Uwanta Wrench Co.:
Uwanta Special, Iron Handle.... 40&10&5%
Other Wrenches..... 50%
Vulcan and Agrippa Chain..... 50%
Whitaker Machinists':
Case Lots..... 50&10%
Less than case lots..... 50%

Fruit Jar—

Benj. P. Forbes, Triumph, ℔ gro., $7.50; per doz.....$0.90

Wrought Goods—

Staples, Hooks, &c., list March 17, '02.....90@—%

Zinc— (*Cask lots at mill.*)

Sheet. .....per 100 lb., $7.00